AVS 71 Program Key

2D	2D Materials
AC	Actinides and Rare Earths
AIML	AI/ML Mini-Symposium
AP	Atomic Scale Processing Mini-Symposium
AQS	AVS Quantum Science Workshop
AS	Applied Surface Science
BI	Biomaterial Interfaces
BP	Biomaterials Plenary
CA	Chemical Analysis and Imaging at Interfaces
CPS+MS	CHIPS Act : Semiconductor Manufacturing Science and Technologies
EL	Spectroscopic Ellipsometry
EM	Electronic Materials and Photonics
EW	Exhibitor Technology Spotlight Sessions
LS	Light Sources Enabled Science Mini-Symposium
MI	Magnetic Interfaces and Nanostructures
MN	MEMS and NEMS
NS	Nanoscale Science and Technology
NSP	Nanoscale Science and Technology Plenary Session
PL	Plenary Lecture
PS	Plasma Science and Technology
QS	Quantum Science and Technology Mini-Symposium
SE	Advanced Surface Engineering
SS	Surface Science
TF	Thin Films
UN	Undergraduate Poster Session
VT	Vacuum Technology

AVS 71 Program Overview

Room /Time	201 ABCD W	205 ABCD W	206 A W	206 B W	207 A W	208 W
SuA			NSP-SuA: Nanoscale Science and Technology Plenary Session			AQS-SuA: AVS Quantum Science Workshop Oral Session
MoM	PS-MoM: Advanced Logic and EUV Patterning		NS1-MoM NS2-MoM	TF1-MoM: Fundamentals of TF I TF2-MoM: Characterization of TF	CPS+MS-MoM	QS1-MoM QS2-MoM
MoA	PS-MoA: Plasma Modelling Focused on CCP	VT1-MoA: Vac for Fusion & Large Syst I VT2-MoA: Vac for Fusion & Large Syst II	NS-MoA: Light-Matter Interactions at the Nanoscale	TF1-MoA: Thin Films for Energy I TF2-MoA: Thin Films for Energy II	CPS+MS-MoA: Semi Manufacturing Workforce Development	QS1-MoA: Advanced Mat for Quant Info Science/QS2-MoA: Surf Eng for Quant Applications
TuM	PS-TuM: Advanced Memory, HARC, and Cryo Etching	VT1-TuM VT2-TuM	NS1-TuM NS2+2D-TuM	TF1+EM-TuM: TF for Energy III/TF2-TuM: VSHOP I - Porous Framework Mater & Membranes	EM1+AP+CPS+MS+PS+QS+SM+TF-TuM EM2+AP+QS+TF-TuM	QS1-TuM QS2-TuM
TuMB						
TuL						
TuA	PS1-TuA PS2-TuA PS3-TuA	VT-TuA SE-TuA 2D-TuA	NS-TuA: Advanced Nanoscale Materials & Device Technologies	TF-TuA: VSHOP II - Infiltration Synthesis of Hybrid Materials	EM1+CPS+MS+PS+SM+TF-TuA EM2+AIML+AP+CPS+MS+SM-TuA	QS1-TuA: Interdisc Apps/QS2-TuA: Scalable Fabrication for Quantum Tech
WeM	PS-WeM: Plasma Catalysis and Surface Interactions	CA+AS+SS-WeM: Chemical Analysis Imaging at Interfaces	AP+PS+TF-WeM: Thermal and Plasma-Enhanced ALD	TF1-WeM: VSHOP III - Initiated CVD TF2-WeM: VSHOP IV - Oxid CVD & MLD	EM1+AP+CA+CPS+MS+TF-WeM EM2+CA+CPS+MS+SE+TF-WeM	
WeA	PS1-WeA PS2-WeA: PS3-WeA	CA-WeA: Advances in Exper & Theor Insights Into Matl Interfaces/NS-WeA	AP+PS+TF-WeA: Thermal and Plasma enhanced Atomic Layer Etching	TF1-WeA: VSHOP V – Vapor Synt of Hybrid Matls & Their Properties/TF2-WeA: Fund of TF II	EM1+AP+CPS+MS+PS+SM+TF-WeA/ EM2+AP+NS+TF-WeA/EM3+TF-WeA	2D+EM+NS+QS+SS+TF-WeA: 2D Materials: Synthesis and Processing
ThM	PS1-ThM: Plasma Diagnostics PS2-ThM: Plasma Sources	EM-ThM: Advances in Material Deposition Techniques	AP+AS+EL+EM+PS+TF-ThM: Adv Atomic Scale Processing through Modeling and Simulation	TF+CPS+MS+EM-ThM: Thin Films for Microelectronics I	AC+MI-ThM: Superconductivity, Magnetism, Electron Correlation and Complex Behavior	2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM: 2D Materials: Optoelectronics and Moire Excitons
ThA	PS+AIML-ThA: Plasma Modelling AI/ML	MN1-ThA: RF and Magnetic MEMS MN2-ThA: Bio & Flex/Wearable Devices	AP+PS+TF-ThA: Emerg Apps for Atom Scale Proc (ALD/ALE) incl Precursors & Surf React	TF+CPS+MS+EM-ThA: Thin Films for Microelectronics II	AC+MI-ThA: Early Career and Rising Stars	2D+AQS+MI+NS+QS+TF-ThA: 2D Matls: Magnets & Topological Phenomena
ThP						
FrM	PS1-FrM PS2-FrM PS3+TF-FrM	MN1-FrM: Integration & Multi-physics/MN2-FrM: 2D and NEMS	AP+EM+PS3+TF-FrM: Area Selective Processing and Patterning	TF-FrM: Fundamentals of Thin Films III	AC+MI-FrM: Spectroscopy, Spect 5f Behavior and Forensics	2D+AQS+EM+NS+QS+TF-FrM: 2D Materials: Devices and Applications

AVS 71 Program Overview

Room /Time	209 B W	209 CDE W	209 F W	Ballroom BC	Hall A, Booth #222
SuA	Quantitative Surface Analysis (QSA-19)		BP-SuA: Biomaterials Plenary Session (ALL-INVITED SESSION)		
MoM	AS+BI+CA-MoM: The Power of SIMS		BI1-MoM: Char. of Biol & Biomaterials Surfaces/BI2-MoM: Biomolecules & Biophys at Interfaces		
MoA	AS-MoA: Quantitative Surface Analysis I	SS-MoA: Photo/Electrochemistry	BI1-MoA: Functional Biomaterials and Sensing BI2-MoA: Microbes and Biofilms		
TuM	AS-TuM: Surface Characterization of Energy Materials	SS+2D-TuM: Complex Phenomena on Surfaces	EL-TuM: Spectroscopic Ellipsometry Analysis Methods		
TuMB					EW-TuMB: Exhibitor Technology Spotlight Session I
TuL					EW-TuL: Exhibitor Technology Spotlight Session II
TuA	AS-TuA: Theory and Data	SS-TuA: Heterogeneous Catalysis I	EL1-TuA: Spectroscopic Ellipsometry Material Applications/EL2-TuA: Spect. Ellipsometry Novel Methodologies		BI-TuA: The Future of Biointerface Science
WeM	AS-WeM: Quantitative Surface Analysis II	SS-WeM: On Surface Reactions	SE-WeM: Advanced Surface Treatments for Enhanced Material Performance		
WeA		SS-WeA: Heterogeneous Catalysis II	MI+2D-WeA: Magnetic Interfaces and Nanostructures Oral Session		
ThM	QED-C Workshop on Cryogenic Technologies for Quantum Information Science and Technology	SS-ThM: Surface Electrical, Magnetic, and Optical Properties			
ThA		SS-ThA: Late Breaking Discoveries from the Rising Stars in Surface Science			
ThP				POSTER SESSIONS	
FrM		SS-FrM: Surface Science of Reduced Dimensional Materials			

Sunday Afternoon, September 21, 2025

	AVS Quantum Science Workshop **Room 208 W - Session AQS-SuA** **AVS Quantum Science Workshop Oral Session (ALL-INVITED SESSION)** **Moderators: Ekta Bhatia**, NY CREATES, **Charles R. Eddy, Jr.**, Office of Naval Research Globa -London, UK, **David Pappas**, Rigetti Computing, **Andre Schleife**, University of Illinois at Urbana-Champaign	**Biomaterials Plenary** **Room 209 F W - Session BP-SuA** **Biomaterials Plenary Session (ALL-INVITED SESSION)** **Moderators:** **Sapun Parekh**, University of Texas at Austin, **Christopher So**, Naval Research Laboratory
3:00pm	**AQS-SuA-1** Experimental Discovery of Anyons: Realizing the Power of Quantum Statistics, ***Michael Manfra***, Purdue University	**INVITED: BP-SuA-1** Protein Structure at Interfaces – Its Where the Action Is, ***Tobias Weidner***, Aarhus University, Denmark
3:15pm		
3:30pm	**INVITED: AQS-SuA-3** Fault Tolerant Quantum Computation using Majorana-Based Topological Qubits, ***Roman Lutchyn***, Microsoft Quantum	
3:45pm		**INVITED: BP-SuA-4** Platelet-Like Biomaterials for Hemostasis and Regenerative Medicine, ***Ashley Brown***, North Carolina State University and UNC Chapel Hill
4:00pm	**INVITED: AQS-SuA-5** Enabling the Scaling of Superconducting Quantum Devices in a 300 mm Wafer Fab, *Ekta Bhatia, Zhihao Xiao, Chung Kow, Stephen Olson, Jakub Nalaskowski, John Mucci, Nicholas Pieniazek, Daniel Romero, Hyuncher Chong, Bryan Egan, Geevanie Telhu, Wenli Collison, Sandra Schujman, Kevin Musick, Thomas Murray, Aleksandra Biedron,* ***Satyavolu Papa Rao***, NY CREATES	
4:15pm		
4:30pm	**BREAK**	**BREAK**
4:45pm	**INVITED: AQS-SuA-8** Laboratory-based Experiential Learning for Quantum Information Science, ***Richard S. Ross***, UCLA	**INVITED: BP-SuA-8** Enzyme-Powered DNA Materials: Harnessing Tdt for Programmable Nanomedicine and Adaptive Assemblies, ***Stefan Zauscher***, Duke University
5:00pm		
5:15pm	**INVITED: AQS-SuA-10** Invited Paper, ***Kasra Sardashti***, Laboratory for Physical Sciences	
5:30pm		
5:45pm	**INVITED: AQS-SuA-12** Quantum Information Science at Brookhaven Lab and the Role of DOE Laboratories in National Research Priorities, ***Charles Black***, Brookhaven National Laboratory	
6:00pm		
6:15pm	**AQS-SuA-14** Panel Discussion	
6:30pm		

Sunday Afternoon, September 21, 2025

	Nanoscale Science and Technology Plenary Session **Room 206 A W - Session NSP-SuA** **Nanoscale Science and Technology Plenary Session** **(ALL-INVITED SESSION)** **Moderator: Nikolai Klimov**, NIST	
3:00pm	**INVITED: NSP-SuA-1** Wide Bandgap III-Nitride Nanostructures: Epitaxy, Properties, and Emerging Device Applications, ***Zetian Mi***, University of Michigan, Ann Arbor	
3:15pm		
3:30pm	**NSP-SuA-3** NSTD Graduate Award Finalists Presentations	
3:45pm		
4:00pm	**NSP-SuA-5** NSTD Early Career Award Finalists Presentations	
4:15pm		
4:30pm	**BREAK**	
4:45pm	**INVITED: NSP-SuA-8** The Gas Field Ionization Source - An Overview of the Physics and the Future of this Technology, ***John Notte***, Carl Zeiss	
5:00pm		
5:15pm	**NSP-SuA-10** Nanoscale Science and Technology Plenary Reception,	
5:30pm		
5:45pm		
6:00pm		

Monday Morning, September 22, 2025

	Room 201 ABCD W	
8:15am	**INVITED: PS-MoM-1** Current Status and Future Perspectives of Plasma-Induced Damage and its Characterization, ***Koji Eriguchi,*** Kyoto University, Japan	**Plasma Science and Technology** **Session PS-MoM** **Advanced Logic and EUV Patterning** **Moderators:** **John Arnold**, IBM, **Angelique Raley**, TEL Technology Center, America, LLC
8:30am		
8:45am	**PS-MoM-3** Direct Etching of Ru Pattern with Space Width of 10 nm and Less, ***Miyako Matsui,*** Hitachi, Ltd., Japan; *Kiyohiko Sato, Makoto Miura, Kenichi Kuwahara,* Hitachi High-Tech Corp., Japan	
9:00am	**PS-MoM-4** Study of Electron-Surface Interactions for Etching of Ruthenium with Chlorine and Oxygen, ***Michael Hinshelwood (Graduate Student)***[1], University of Maryland College Park; *Hubertus Marbach, Michael Remmel, Gerson Mette, Michael Budach, Daniel Rhinow, Klaus Edinger,* Carl Zeiss SMT GmbH, Germany; *Gottlieb S. Oehrlein,* University of Maryland College Park	
9:15am	**PS-MoM-5** Highly Selective Isotropic etching of SiGe over Si via Pulsed RF Power in NF_3 Plasma, *Geun Young Yeom,* ***Hong Seong Gil (Graduate Student)****, Woo Chang Park, Yun Jong Jang,* Sungkyunkwan University (SKKU), Republic of Korea	
9:30am	**PS-MoM-6** Significance of the Impacts of Metal Oxide Resists (MORs) in Plasma Etch Processes, ***Adam Pranda****, Steven Grzeskowiak, Yusuke Yoshida, Eric Liu,* TEL Technology Center, America, LLC	
9:45am		
10:00am		
10:15am	**BREAK**	
10:30am	**PS-MoM-10** Influence of Nitrogen on Controlling the Etch Selectivity between Tungsten Metal and Dielectric Materials, ***Indroneil Roy****, Pingshan Luan, Jason Marion, Yusuke Yoshida, Peter Biolsi,* TEL Technology Center America	
10:45am	**PS-MoM-11** Plasma Etch of Low-K Dielectric (SiOC, SiOCN) at Reduced Temperature, ***Sang-Jin Chung (Graduate Student)****,* University of Maryland, College Park; *Pingshan Luan, Adam Pranda, Yusuke Yoshida,* TEL Technology Center America; *Gottlieb Oehrlein,* University of Maryland, College Park	
11:00am	**PS-MoM-12** Etch Characteristics of Flexible Low-*k* SiCOH Thin Films Under Fluorocarbon-Based Plasmas Using Inductively Coupled Plasma-Reactive Ion Etching Process, ***Rajib Chowdhury (Graduate Student)****, Thomas Poché, SeonHee Jang,* University of Louisiana at Lafayette	
11:15am	**PS-MoM-13** Enhancing 24nm Pitch Line / Space by DSA Rectification: A Path to Smoother Lines and Car Extension, ***Rémi Vallat****, Lander Verstraete, Philippe Bézard, Hyo Seon Suh, Laurent Souriau, Kurt Ronse,* IMEC, Belgium	
11:30am	**INVITED: PS-MoM-14** Dry Etch Challenges Towards the High NA EUV Lithography Patterning Era, ***Sara Paolillo****, Stefan Decoster, Philippe Bezard, Remi Vallat, Vincent Renaud, Viktor Kampitakis, Annaelle Demaude, Laurent Souriau, Bhavishya Chowrira, Dieter Van Den Heuvel, Victor M. Blanco Carballo, Syamashree Roy, Shubhankar Das, Frederic Lazzarino,* IMEC, Belgium	
11:45am		
12:00pm	**PS-MoM-16** Next Generation Interconnect Patterning of Ruthenium Using Advanced RIE Processing, ***Shravana Kumar Katakam****, Harsimran Singh,* IBM Research Division, Albany, NY; *Nicholas Joy, Dayun Yan,* TEL Technology Center, America, LLC, Albany, NY; *Christopher Penny, Koichi Motoyama, Hosadurga Shobha, Yann Mignot, Joe Lee,* IBM Research Division, Albany, NY	

[1] **JVST Highlighted Talk**

Monday Morning, September 22, 2025

	Room 206 A W	
8:15am	**INVITED: NS1-MoM-1** Design, Construction, and Performance of a Dilution Refrigerator-Based Esrspm System with Cryogenic Switches, ***Robertus Elbertse***, *Dengyu Yang, Sungmin Kim, Dilek Yildiz, Daniel Walkup, Steven Blankenship, Joseph Stroscio,* NIST	**Nanoscale Science and Technology** **Session NS1-MoM** **Frontier in Nanoscale Electron, Ion, and Scanning Probe Imaging** **Moderators:** **Marek Kolmer**, Ames National Laboratory, **Robertus Elberse**, NIST
8:30am		
8:45am	**NS1-MoM-3** Magnetic Coupling in Graphene Nanoribbon Quantum Dots and Looking Beyond, ***Percy Zahl***, Brookhaven National Laboratory*; Alexander Sinitskii, Mamun Sarker,* University of Nebraska-Lincoln, USA*; Peter H. Jacobse, Michael F. Crommie,* University of California, Berkeley*; Anshul Saxena,* Walker Department of Mechanical Engineering University of Texas*; Ziyi Wang,* Materials Sciences Division Lawrence Berkeley National Laboratory Berkeley*; Emma Berger,* Department of Physics University of California, Berkeley*; Narayana R. Aluru,* Walker Department of Mechanical Engineering University of Texas	
9:00am	**NS1-MoM-4** Direct Observation of Mg Diffusion Through Screw-type Dislocations in a GaN Device Using Atom Probe Tomography, ***Yimeng Chen***, *Michael Salmon, Xiuhong Han,* EAG Laboratories	
9:15am	**NS1-MoM-5** Focused Ion Beam Low Energy Implantation, ***Alex Belianinov***, *Michael Titze, Chris Smyth,* Sandia National Laboratories*; Jonathan Poplawsky,* Oak Ridge National Laboratory*; Barney Doyle,* Sandia National Laboratories	
9:30am	**NS1-MoM-6** Silicon-Containing Poly(Phthalaldehyde) Hard Mask Materials for Simplified High-Resolution and Grayscale Patterning via Thermal Scanning Probe Lithography (t-SPL) - A NanoFrazor Use Case, ***Nicholas Hendricks***, *Emine Çağin,* Heidelberg Instruments Nano AG, Switzerland	
9:45am	**NS1-MoM-7** Tunable Electronic Properties Within Highly Unoccupied Electronic Bands of Graphene-SiC Heterostructures Determined by Scanning Tunneling Spectroscopy, ***Marek Kolmer***, *Umamahesh Thupakula, Shen Chen,* Ames National Laboratory*; Hoyeon Jeon,* Oak Ridge National Laboratory*; Wonhee Ko,* The University of Tennessee, Knoxville*; An-Ping Li,* Oak Ridge National Laboratory*; Michael C. Tringides,* Iowa State University	
10:00am		**Nanoscale Science and Technology** **Session NS2-MoM** **Advanced Nanomaterial for Quantum and Energy Applications** **Moderators:** **Alex Belianinov**, Sandia National Laboratory, **Wonhee Ko**, University of Tennessee, Knoxville
10:15am	**BREAK**	
10:30am	**INVITED: NS2-MoM-10** Fabricating Color Centers using Liquid Metal Alloy Ion Source Focused Ion Beams, ***Michael Titze***, Sandia National Laboratories	
10:45am		
11:00am	**NS2-MoM-12** Atomic-scale Vibrational Excitations at Amorphous/Crystalline Interfaces, ***Kory Burns***[1], University of Virginia, USA*; Nooreen Qureshi,* University of Virginia*; Tymofil Pieshkov, Pulickel Ajayan,* Rice University*; Jordan Hachtel,* Center for Nanophase Materials Sciences, Oak Ridge National Laboratory	
11:15am	**NS2-MoM-13** Revealing Quantum Functionality of Topological Thin Films by *in situ* Characterization with Materials Cluster System, ***Wonhee Ko***, University of Tennessee, Knoxville	
11:30am	**NS2-MoM-14** Atomically Precise vertical Tunnel Field Effect Transistor (vTFET) for 10X Microelectronics Energy Efficiency in a General Purpose Transistor, *Desiree Salazar,* Energetics Inc.*; **Shashank Misra***, Sandia National Laboratories, USA	
11:45am	**NS2-MoM-15** Microwave-Assisted Direct Upcycling of Lithium Ion Battery Cathodes, ***Clare Davis-Wheeler Chin***, Sandia National Laboratories*; Kirsten Jones,* University of New Orleans*; Boyoung Song, Bryan Wygant, Anastasia Ilgen,* Sandia National Laboratories*; Candace Chan,* Arizona State University*; C.J. Pearce,* Sandia National Laboratories*; Winson Kuo, John Watt,* Los Alamos National Laboratory*; John B. Wiley,* University of New Orleans*; Kevin Leung,* Sandia National Laboratories	

[1] **JVST Highlighted Talk**

Monday Morning, September 22, 2025

	Room 206 B W	
8:15am	**INVITED: TF1-MoM-1** Reduced Oxide Epitaxy at Very High Temperatures, ***Joseph Falson,*** Caltech	**Thin Films** **Session TF1-MoM** **Fundamentals of Thin Films I** **Moderators:** **Jeffrey Elam**, Argonne National Laboratory, **Paul Poodt**, Eindhoven University of Technology, Netherlands
8:30am		
8:45am	**TF1-MoM-3** High Entropy Oxide Epitaxial Thin Films via Far-from-Equilibrium Synthesis, ***Saeed S. I. Almishal***, *Matthew Furst, Sai Venkata Gayathri Ayyagari,* The Pennsylvania State University*; Pat Kezer,* University of Michigan, Ann Arbor*; Nasim Alem,* The Pennsylvania State University*; Christina Rost,* Virginia Tech*; John Heron,* University of Michigan, Ann Arbor*; Jon-Paul Maria,* The Pennsylvania State University	
9:00am	**TF1-MoM-4** ALD with Alternative Co-Reactants: Which Work, Which Do Not, and Why, ***Jay Swarup (Graduate Student)***[12], *Robert Mercogliano, James Jensen, Geet Chheda, Robert DiStasio Jr., James Engstrom,* Cornell University	
9:15am	**TF1-MoM-5** Enhancing Atomic Layer Deposition Reactor Efficiency for Iridium Thin Films: Balancing Sustainability and Performance in Film Growth, ***Jaron Vernal Moon***, *Timothy J. Gorey,* Los Alamos National Laboratory	
9:30am	**TF1-MoM-6** Diffusion, Reaction and Thermodynamics of Organic Vapor Phase Infiltration to Overcome Shortcomings of Inorganic Hybridization, ***Brian Welch,*** Technion Israel Institute of Technology, Israel*; Bratin Sengupta,* Argonne National Laboratory, USA*; Ruoke Cai,* Technion Israel Institute of Technology, Israel*; Vepa Rozyyev,* Argonne National Laboratory, USA*; Eitan Feldman,* Rice University*; Anil Mane,* Argonne National Laboratory, USA*; Alon Grinberg Dana,* Technion Israel Institute of Technology, Israel*; Jeffrey Elam,* Argonne National Laboratory, USA*; Tamar Segal-Peretz,* Technion Israel Institute of Technology, Israel	
9:45am	**TF1-MoM-7** Tailoring Ba-Based Thin Films for Security Imaging: Role of H_2O Reactivity and Al_2O_3 Supercycle Integration in ALD, ***Adnan Mohammad***, *Chi Thang Nguyen, Nuwanthaka Jayaweera, Jacob Kupferberg, Jeffrey W. Elam,* Argonne National Laboratory, USA	
10:00am		
10:15am	**BREAK**	
10:30am		**Thin Films** **Session TF2-MoM** **Characterization of Thin Films** **Moderators:** **Joseph Falson**, Caltech, **John Hennessy**, Jet Propulsion Laboratory (NASA/JPL)
10:45am		
11:00am	**TF2-MoM-12** Data Science Tools to Disentangle Large Electron Diffraction Datasets of Thin Films, ***Matthias Young***, *Andreas Werbrouck, Andrew Meng, Dilan Gamachchige, Indeewari Herathlage, Nikhila Paranamana, Xiaoqing He,* University of Missouri	
11:15am	**TF2-MoM-13** A Novel *A*pproach to Study EUV and BEUV Photoresist Sensitivity through Real-time µXPS, ***Peter Sun***, *Samuel Tenney, Chang-Yong Nam, Jerzy Sadowski,* Brookhaven National Laboratory	
11:30am	**TF2-MoM-14** Stoichiometric Determination in Thin Films: A Study of $BaTiO_3$, ***Peter Dickens***, *Melissa Meyerson, Mark Rodriguez, Clare Davis-Wheeler, Jonathan Heile, William Wampler, Christian Harris, Brianna Klein,* Sandia National Laboratories	
11:45am	**TF2-MoM-15** Advanced Characterization of Inorganic and Organic Liners for Through Vias in Glass Packages, ***Meghna Narayanan (Graduate Student)***, *Mohan Kathaperumal, Mark Losego,* Georgia Institute of Technology, USA	
12:00pm		

[1] **TFD James Harper Award Finalist**

[2] **JVST Highlighted Talk**

Monday Morning, September 22, 2025

	Room 207 A W	
8:15am		**CHIPS Act : Semiconductor Manufacturing Science and Technologies** **Session CPS+MS-MoM** **Digital Twins and Advanced Packaging for Semiconductor Manufacturing** **Moderators:** **Tina Kaarsberg**, U.S. Department of Energy, Advanced Manufacturing Office, John Lannon**, Micross**
8:30am		
8:45am		
9:00am	**CPS+MS-MoM-4** An Overview of Advanced Semiconductor Packaging Activities at Arizona State University*, **Christopher Bailey**, Hongbin Yu,* Arizona State University	
9:15am	**INVITED: CPS+MS-MoM-5** Overview of research at the Center for Heterogeneous Integration Research in Packaging (CHIRP) Center*, **Srikanth Rangarajan**,* Binghamton University	
9:45am	**CPS+MS-MoM-7** Re-Shoring Advanced Packaging Capabilities in a Secure Environment*, **John M. Lannon Jr**, Rex Anderson,* Micross Advanced Interconnect Technology	
10:00am	**CPS+MS-MoM-8** ML-based Co-design of TSV and TGV Interposers for Advanced Packages*, Pouria Zaghari, Sourish Sinha, **Douglas Hopkins**, Jong Ryu,* North Carolina State University	
10:15am	**BREAK**	
10:30am	**INVITED: CPS+MS-MoM-10** Digital Twins and the SRC MAPT2 Chapter on Digital Twins and Applications*, **Robert Baseman**,* IBM Research Division, T.J. Watson Research Center	
11:00am	**CPS+MS-MoM-12** Digital Twins Meet Materials Science: Real-Time AI Analysis for Advanced Manufacturing*, **Jeff Terry**,* Illinois Institute of Technology	
11:15am		
11:30am		
11:45am		

Monday Morning, September 22, 2025

	Room 208 W	
8:15am	**QS1-MoM-1** Strongly Anharmonic Gatemon Devices on Proximitized InAs 2DEG, ***Shukai Liu (Graduate Student)***[1], University of Maryland, College Park*; Arunav Bordoloi, Jacob Issokson, Ido Levy,* New York University*; Kasra Sardashti,* University of Maryland College Park*; Javad Shabani,* New York University*; Vladimir Manucharyan,* EPFL, Switzerland	**Quantum Science and Technology Mini-Symposium** **Session QS1-MoM** **Qubit Modalities for Quantum Computing** **Moderators:** **Ekta Bhatia**, NY CREATES, **Drew Rebar**, Pacific Northwest National Laboratory
8:30am	**INVITED: QS1-MoM-2** Quantum Keynote Lecture: Evolution of IBM Quantum Processors Towards Advantage and Quantum Error Correction, ***David McKay***[2]*, Jerry Chow,* IBM Quantum	
8:45am		
9:00am		
9:15am	**QS1-MoM-5** Stable CNOT-Gate on Inductively-Coupled Fluxoniums with Over 99.9% Fidelity I, *Wei-Ju Lin,* University of Maryland College Park, Taiwan*; **Hyunheung Cho (Graduate Student)**,* University of Maryland College Park, Republic of Korea*; Yinqi Chen,* Louisiana State University, China*; Kasra Sardashti,* Laboratory for Physical Sciences*; Maxim Vavilov,* University of Wisconsin - Madison*; Chen Wang,* University of Massachusetts - Amherst*; Vladimir Manucharyan,* EPFL, Switzerland	
9:30am	**QS1-MoM-6** Stable CNOT-Gate on Inductively-coupled Fluxoniums with over 99.9% Fidelity II, *Wei-Ju Lin, Hyunheung Cho,* University of Maryland, College Park*; Yinqi Chen,* University of Wisconsin - Madison*; **Kasra Sardashti**,* University of Maryland, College Park*; Maxim G. Vavilov,* University of Wisconsin - Madison*; Chen Wang,* University of Massachusetts, Amherst*; Vladimir E. Manucharyan,* EPFL, Switzerland	
9:45am	**INVITED: QS1-MoM-7** Silicon-Based Quantum Processors, ***Jason Petta**,* University of California at Los Angeles	
10:00am		
10:15am	**BREAK**	
10:30am	**INVITED: QS2-MoM-10** Superconducting Qubits at MIT Lincoln Laboratory, ***Mollie Schwartz**,* MIT Lincoln Laboratory	**Quantum Science and Technology Mini-Symposium** **Session QS2-MoM** **Systems, Devices, and Manufacturing Technologies for Quantum Technology** **Moderator:** **Aranya Goswami**, Massachusetts Institute of Technology
10:45am		
11:00am	**QS2-MoM-12** Voltage Tunable MBE-grown Ge/SiGe Josephson Junctions for Gatemon Qubits, ***Joshua Thompson**, Jason Dong, Junior Langa,* Laboratory for Physical Sciences*; Brycelynn Bailey,* University of Arkansas*; Chomani Gaspe, Riis Card,* Laboratory for Physical Sciences*; Shiva Davari, Mariam Afrose,* University of Arkansas*; Thomas Hazard, Kyle Serniak,* MIT Lincoln Laboratory*; Kasra Sardashti,* Laboratory for Physical Sciences*; Hugh Churchill,* University of Arkansas*; Christopher Richardson,* Laboratory for Physical Sciences	
11:15am	**QS2-MoM-13** Development of Ge/SiGe Semiconducting Quantum Dot Devices for Hole-Based Spin Qubits, ***Giovanni Franco-Rivera**, Jason Dong,* University of Maryland College Park*; Alan Kramer,* Laboratory for Physical Sciences*; Kasra Sardashti,* University of Maryland College Park*; Robert Butera,* Laboratory for Physical Sciences	
11:30am	**INVITED: QS2-MoM-14** Post-processing of Josephson Junctions for Precision Tuning of Qubit Frequencies , ***David P. Pappas**,* Rigetti Computing*; X Wang, Joel Howard, Greg Stiehl, Cameron Kopas, Stefano Poletto, Xian Wu, Mark Field, Nicholas Sharac, Christopher Eckberg, Hilal Cansizoglu, Raja Katta, Josh Mutus, Andrew Bestwick, Kameshwar Yadavalli,* Rigetti Computing*; Jinsu Oh,* Ames Laboatory*; Lin Zhou, Matthew Kramer,* Ames Laboratory	
11:45am		

[1] **JVST Highlighted Talk**

[2] **Quantum Keynote Lecture**

Monday Morning, September 22, 2025

	Room 209 B W	
8:15am		**Applied Surface Science** **Session AS+BI+CA-MoM** **The Power of SIMS** **Moderators:** **Alexander Shard**, National Physical Laboratory, UK, **Tanguy Terlier**, Rice University
8:30am		
8:45am	**AS+BI+CA-MoM-3** Inspection of Next Generation EUV Resists with NP-SIMS, ***Markus Langner***, *Gregrey Swieca*, California State University Northridge; *Won-Il Lee*, *Shixian Ha,* Stony Brook University/Brookhaven National Laboratory; *Nikhil Tiwale, Chang-Yong Nam,* Brookhaven National Laboratory; *Michael Eller,* California State University Northridge	
9:00am	**AS+BI+CA-MoM-4** Diffusion Study of Sodium in Hard Carbon Anode Active Materials Using a Novel in Situ ToF-SIMS Approach, ***Pascal Dippell (Graduate Student)***, *David Schaefer, Lysander Q. Wagner, Alexander Weiß, Bernd Smarsly, Marcus Rohnke,* Justus Liebig University Giessen, Germany	
9:15am	**AS+BI+CA-MoM-5** Investigating Ionic Motion in Memristors via Topographically Corrected ToF-SIMS, ***Jacob Shusterman***, Oak Ridge National Laboratory, USA	
9:30am	**AS+BI+CA-MoM-6** Standardless, Semi-quantitative ToF-SIMS using the Full Spectrum Method (FSM), ***Nicolas Molina Vergara (Graduate Student)***, *Camille Edwards, Andrei Dolocan, Filippo Mangolini,* University of Texas at Austin	
9:45am	**INVITED: AS+BI+CA-MoM-7** AVS Medard Welch Award Talk: High Resolution Molecular Imaging by Mass Spectrometry – The OrbiSIMS Odyssey, ***Ian Gilmore***, National Physical Laboratory, U.K.	
10:00am		
10:15am	**BREAK**	
10:30am	**INVITED: AS+BI+CA-MoM-10** ASSD Peter Sherwood Award Talk: In situ Detection of Proteins, Xenobiotics and Metabolomics via OrbiSIMS, ***David Scurr***[1], University of Nottingham, UK	
10:45am		
11:00am	**INVITED: AS+BI+CA-MoM-12** Delineating Spatial Cellular Complexities Using Multi-omics Approach by GCIB-SIMS, ***Hua Tian***, University of Pittsburgh	
11:15am		
11:30am	**AS+BI+CA-MoM-14** Arsenic Quantification in SiGe: Advancing Accuracy with Orbitrap™-SIMS, ***Alexis Franquet***[2], IMEC Belgium; *Alexander Pirkl,* IONTOF GmbH, Germany; *Rita Tilmann,* IMEC Belgium	
11:45am	**AS+BI+CA-MoM-15** Evidence of Surface Localization of Hydrogen and Zirconium Hydride in Zircaloy with Time-of-Flight Secondary Ion Mass Spectroscopy (ToF-SIMS), ***Edward Gillman***, Naval Nuclear Laboratory	

[1] **ASSD Peter Sherwood Award**

[2] **JVST Highlighted Talk**

Monday Morning, September 22, 2025

	Room 209 F W	
8:15am	**INVITED: BI1-MoM-1** Determine Protein Conformation and Orientation at Buried Solid/Liquid Interfaces in Situ, ***Zhan Chen,*** University of Michigan	**Biomaterial Interfaces** **Session BI1-MoM** **Characterization of Biological and Biomaterials Surfaces** **Moderators:** **Pierluigi Bilotto**, TU Wien, Austria, **Morgan Hawker**, California State University, Fresno
8:30am		
8:45am	**BI1-MoM-3** Cryo-XPS Characterisation and Solution Realism for Functional Nanoparticle Analysis, ***Liam Soomary,*** *Jonathan Counsell,* Kratos Analytical Limited, UK*; David Cant, William Lee,* National Physical Laboratory, UK	
9:00am	**BI1-MoM-4** GCIB-SIMS in the study of Lymphoma, ***John Fletcher,*** *Simon Uzoni, Noora Neittaanmäki, Vasilis Chatzikyriako, Daniele Zanchin,* University of Gothenburg, Sweden	
9:15am	**BI1-MoM-5** Optical Dynamics of Electrochemically Driven Reflectin Protein Films, *Yin-Chen Lin, Dan Morse, Lior Sepunaru,* ***Michael Gordon***[1], University of California at Santa Barbara	
9:30am	**BI1-MoM-6** Interaction Dynamics of Borrelia Surface Proteins with Fibronectin, ***Nuri Oncel,*** *Kavindi Hewage, Carlos Munoz, Mehmet Ozdogan, Catherine Brissette,* University of North Dakota	
9:45am	**BI1-MoM-7** Ready, Settlement, Action! Leveraging Microcomputed Tomography in Barnacle-Substrate Interactions, ***Brittney Mitchell (Graduate Student),*** *Beatriz Orihuela,* Duke University*; Gary Dickinson,* The College of New Jersey*; Daniel Rittschof,* Duke University	
10:00am		
10:15am	**BREAK**	
10:30am	**INVITED: BI2-MoM-10** How Swelling Affects Microscale Wetting and Friction of Soft Interfaces, ***Jonathan Pham,*** University of Cincinnati	**Biomaterial Interfaces** **Session BI2-MoM** **Biomolecules and Biophysics at Interfaces** **Moderators:** **Kenan Fears**, U.S. Naval Research Laboratory, **Markus Valtiner**, Vienna University of Technology, Austria
10:45am		
11:00am	**BI2-MoM-12** Stability of Semi-Conducting Oxides Under Photocatalytic and Hydrogen Evolving Conditions, *Tatjana Ott, Ruri Lee,* ***Markus Valtiner,*** Technische Universität Wien, Austria	
11:15am	**BI2-MoM-13** PFAS-Protein Interactions: Effects of Perfluorooctanoate on the Structure and Function of Cytochrome C, ***William Maza,*** US Naval Research Laboratory	
11:30am		
11:45am	**BI2-MoM-15** Influence of Surface Structural and Electronic Properties on Antibacterial Action of Nano- and Microcrystalline Fe:ZnO, ***Yuri M. Strzhemechny,*** *John H. Brannon, Dustin A. Johnson, Tiffany Y. McHenry, Devansh Kalluholematham,* Texas Christian University*; Rachel E. Cuth,* Kutztown University*; Kevin Srun,* James Martin High School	
12:00pm	**BI2-MoM-16** Molecular Insights into the Influence of Tail Architecture on Self-Assembly of Peptide-Polymer Amphiphile, *Sabila Kader Pinky,* North Carolina State University*; Benjamin Allen, Abigail Knight,* University of North Carolina at Chapel Hill*; Yaroslava Yingling,* ***Merve Fedai (****Graduate Student)* North Carolina State University	

[1] **JVST Highlighted Talk**

Monday Afternoon, September 22, 2025

	Room 201 ABCD W	
1:30pm	**INVITED: PS-MoA-1** Plasma Prize 2024 Award Talk: Some Tales from Our Model Validation Adventures, ***Shahid Rauf***, *Han Luo, Peng Tian, Jun-Chieh Wang, Xingyi Shi, Tianhong Wang, Nakul Nuwal, Rupali Sahu, Kallol Bera, Jason Kenney,* Applied Materials, Inc.*; Manuel Schroeder, Jan Guttmann, Niklas Friedrichs, Ihor Korolov, Julian Schulze,* Ruhr-University Bochum, Germany	**Plasma Science and Technology** **Session PS-MoA** **Plasma Modelling Focused on CCP** **Moderators:** **Mingmei Wang**, Lam Research Corporation, **Du Zhang**, TEL Technology Center America
1:45pm		
2:00pm	**PS-MoA-3** Experimental Validation of a Stability Model for Capacitively Coupled Plasmas, ***Omar Alsaeed (Graduate Student)***, North Carolina State University*; Brian Bentz,* Sandia National Laboratories*; Benjamin Yee, Brett Scheiner, Chenhui Qu, Meenakshi Mamunuru,* Lam Research Corporation*; Amanda Lietz,* North Carolina State University	
2:15pm	**PS-MoA-4** Radio-Frequency Power Pulsing of Intermediate Pressure Electronegative Capacitively Coupled Plasma, ***Rupali Sahu***, *Kallol Bera, Shahid Rauf,* Applied Materials Inc.	
2:30pm	**INVITED: PS-MoA-5** Hybrid Kinetic-Fluid Methods of Plasma Modeling, ***Vladimir Kolobov***, University of Alabama at Huntsville	
2:45pm		
3:00pm	**PS-MoA-7** Regression-based Circuit Estimation of Collisional Sheath in Moderate Pressure Capacitively Coupled Plasma, ***Sathya Ganta***, *Abhishek Verma, Kallol Bera,* Applied Materials, Inc.	
3:15pm	**PS-MoA-8** The Impact of Tailored Voltage Waveforms on Reaction Rates in Capacitively Coupled Plasma Ar/O_2 Discharges, ***Syed M. Zulqarnain (Graduate Student)***, *Amanda M. Lietz,* North Carolina State University*; James Prager, Timothy Ziemba,* EHT Semi	
3:30pm	**PS-MoA-9** Intermediate Pressure Capacitively Coupled Plasma Model Validation, ***Kallol Bera***, *Rupali Sahu, Nakul Nuwal, Shahid Rauf,* Applied Materials, Inc.	
3:45pm	**BREAK**	
4:00pm	**PS-MoA-11** Modeling insights into amorphous carbon etching by SO2/O2 low-pressure plasma, ***Dmitry Levko***, *Mingmei Wang,* Lam Research Corporation	
4:15pm	**PS-MoA-12** Pulsed Power Strategies for Plasma Etching of High Aspect Ratio Features Using Fluorocarbon Gas Mixture for Feature Charging Control, ***Yifan Gui (Graduate Student)***, *Yeon Geun Yook, Chenyao Huang, Mark J. Kushner,* University of Michigan	
4:30pm	**PS-MoA-13** Application of a Structured Showerhead Electrode in Plasma Enhanced Chemical Vapour Deposition: Modeling and Experimental Study, ***Montu Bhuva***, *Geoff Hassall, James Ellis, Gregory Daly,* Oxford Instruments Plasma Technology, UK*; Erik Wagenaars, James Dedrick,* University of York, UK	
4:45pm	**PS-MoA-14** Kinetic and Hybrid Modeling of a Radio Frequency Hollow Cathode Discharge and Comparison with Experiments, ***Nakul Nuwal***, *Kallol Bera, Han Luo, Xingyi Shi,* Applied Materials Inc.*; Shahid Rauf,* Applied Materials, USA*; Jan Guttmann,* Applied Materials Inc.*; Ihor Korolov, Julian Shulze,* Ruhr Universität Bochum, Germany	
5:00pm	**PS-MoA-15** Molecular Dynamics Analysis of Transport Properties and Gap-Filling Mechanisms in Flowable Chemical Vapor Deposition Using TEOS-Based Plasma, ***Hu Li***, Tokyo Electron America Inc.,*; Takeo Nakano, Masaaki Matsukuma,* Tokyo Electron Technology Solutions Ltd., Japan*; Jianping Zhao, Peter Ventzek,* Tokyo Electron America Inc.,	
5:15pm	**PS-MoA-16** Validation of Fluorocarbon Containing Gas-Phase Reaction Mechanisms for Computational Modeling of Commercial Atomic Scale Processing Plasmas, ***Jordyn Polito***, *Ben Harris, Geoff Hassall, James Ellis,* Oxford Instruments Plasma Technology, UK	

Monday Afternoon, September 22, 2025

	Room 205 ABCD W	
1:30pm	**INVITED: VT1-MoA-1** Advanced Roots Pumping Solutions for Demanding Applications in Fusion and Nuclear Research: The New Okta 1500 GM, ***Nico Völker,*** Pfeiffer Vacuum GmbH, Germany	**Vacuum Technology** **Session VT1-MoA** **Vacuum for Fusion and Large Systems I** **Moderators:** **Sol Omolayo**, Lawrence Berkeley National Laboratory, **Charles Smith**, Oak Ridge National Laboratory
1:45pm		
2:00pm		
2:15pm	**VT1-MoA-4** SPARC Tokamak Status and Inter-Pulse Pumping Projections, ***Matt Fillion****, Oliver Mulvany,* Commonwealth Fusion Systems*; Shaun Hughes, Ant Hollingsworth,* Commonwealth Fusion Systems, UK*; Chris Chrobak, Adam Kuang,* Commonwealth Fusion Systems	
2:30pm	**INVITED: VT1-MoA-5** ITER Roughing Pump System Within the Fuel Cycle, ***Ainsley Hart****, Jared Tippens, Lisa Batsch-Smith, David vanderVeen,* Oak Ridge National Laboratory	
2:45pm		
3:00pm	**INVITED: VT1-MoA-7** Space Simulator – Thermal-Vacuum Chambers, ***Juan Pablo Romero (Graduate Student)***, INOVOAL Corp, Argentina	
3:15pm		
3:30pm	**VT1-MoA-9** Alternative Method for Large Vacuum Systems Bake-Out, ***Freek Molkenboer****, Han Veldhuis, Herman Bekman, Andrey Ushakov, Veronique De Rooij, Thom Oosterveen, Michael Dekker, Corne Rijnsent, Willem van Werkhoven, Dirk van Baarle,* TNO Science and Industry, the Netherlands	
3:45pm	**BREAK**	
4:00pm	**INVITED: VT2-MoA-11** The Einstein Telescope Beam Pipe Vacuum System: The Pilot Sector, ***Ivo Wevers****, Giuseppe Bregliozzi, Paolo Chiggiato, Manjunath Dakshinamurthy, Ana Teresa Perez Fontenla,* CERN, Switzerland*; Purnalingam Revathi,* university of Antwerp, Belgium*; Carlo Scarcia,* CERN, Switzerland	**Vacuum Technology** **Session VT2-MoA** **Vacuum for Fusion and Large Systems II** **Moderators:** **Freek Molkenboer**, TNO Science and Industry, the Netherlands, **Marcy Stutzman**, Jefferson Lab
4:15pm		
4:30pm		
4:45pm	**VT2-MoA-14** Comparative Water and Hydrogen Outgassing Behavior of Bare vs. Magnetite-Coated AISI 1020 Low-Carbon Steel, ***Aiman Al-Allaq (Graduate Student)***, ODU - Jefferson Lab*; Md Abdullah Al Mamun, Matthew Poelker,* Jefferson Lab*; Abdelmageed Elmustafa,* ODU	
5:00pm	**VT2-MoA-15** Panel Discussion	
5:15pm	**VT2-MoA-16** VTD Business Meeting	

Monday Afternoon, September 22, 2025

	Room 206 A W	
1:30pm 1:45pm		**Nanoscale Science and Technology** **Session NS-MoA** **Light-Matter Interactions at the Nanoscale** **Moderators:** **Nikolai Klimov**, National Institute of Standards and Technology, **Sesha Challa**, NIST-Gaithersburg
2:00pm	**NS-MoA-3** Towards the Development of Robust Chip-Scale Photonic Thermometers, ***Sesha Challa***, *Michal Chojnacky, Kevin Douglass, Thinh Bui, Daniel Barker, Nikolai Klimov,* NIST-Gaithersburg	
2:15pm	**NS-MoA-4** SpoT On: Precision Photonic Thermometry System with Packaged Sensor and Modular Readout Architecture, ***Michal Chojnacky (Graduate Student)***, National Institute of Standards and Technology (NIST)/ University of Maryland, College Park; *CH. S. S. Pavan Kumar, Kevin Douglass, Thinh Bui, Nikolai Klimov,* National Institute of Standards and Technology (NIST)	
2:30pm	**NS-MoA-5** Development of New Chip-Scale Photonic AC-DC Thermal Transfer Standard, *Sesha Challa, Michal Chojnacky, Kevin O. Douglass, Daniel S. Barker,* NIST; *Stefan Cular,* Howard Community College, Columbia, MD; ***Nikolai Klimov***, NIST	
2:45pm	**NS-MoA-6** Deterministic Design of Pseudo-Randomly Distributed Nanostructures for Antireflectivity in the MWIR. , ***Samir Paudel (Graduate Student)***, *Menelaos K. Poutous,* University of North Carolina at Charlotte	
3:00pm	**NS-MoA-7** Plasmonic Behavior in Boron-Doped Diamond Arising from Low Energy, Intervalence Band Electronic Excitations, ***Souvik Bhattacharya (Graduate Student)***, *R. Mohan Sankaran,* University of Illinois at Urbana Champaign	
3:15pm	**NS-MoA-8** Two-Layer Dual-Mode Reflective-Transmissive Polarization Converter by Stereometamaterials, ***Sanchita Sarker (Graduate Student)***, *Mohammad Parvinnezhad Hokmabadi,* University of North Carolina at Charlotte	
3:30pm	**NS-MoA-9** Near-Perfect Metamaterial Polarization Rotator for Arbitrary Linear Input States, *Sanchita Sarker,* ***Mohammad Parvinnezhad Hokmabadi***, University of North Carolina at Charlotte	
3:45pm	**BREAK**	
4:00pm	**NS-MoA-11** Direct-Write Ion Patterning of Aluminum Nitride Towards Tuning Integrated Photonics, ***Bogdan Dryzhakov***, *Kyle Kelley,* Oak Ridge National Laboratory	
4:15pm	**NS-MoA-12** Actively Tunable in-Plane Hyperbolicity in Excitonic Single-Walled Carbon Nanotubes, ***Jason Lynch (Graduate Student)***, *Deep Jariwala,* University of Pennsylvania	
4:30pm	**NS-MoA-13** Imaging Photonic Resonances within an All-Dielectric Metasurface via Photoelectron Emission Microscopy, ***Andrew Kim***[1], Sandia National Laboratories; *Chloe Doiron,* Sandia National Laboratories, USA; *Fernando Vega,* Purdue University, USA; *Jaeyeon Yu, Alex Boehm, Joseph Klesko, Igal Brener, Raktim Sarma, Alexander Cerjan, Taisuke Ohta,* Sandia National Laboratories, USA	
4:45pm	**NS-MoA-14** Investigation the Photocatalytic effect of RuO_2 loading on TiO_2 towards Hydrogen Evolution in Visible Light, ***Moses Ashie (Graduate Student)***, *Bishnu Bastakoti,* North Carolina A&T State University	
5:00pm		

[1] **JVST Highlighted Talk**

Monday Afternoon, September 22, 2025

	Room 206 B W	
1:30pm		**Thin Films** **Session TF1-MoA** **Thin Films for Energy I** **Moderators:** **Blake Nuwayhid**, Naval Research Laboratory, **Matthias Young**, University of Missouri
1:45pm		
2:00pm	**INVITED: TF1-MoA-3** Enabling Scalable Sustainable Energy Devices via Spatial Atomic Layer Deposition, ***Paul Poodt***, SparkNano and Eindhoven University of Technology, Netherlands	
2:15pm		
2:30pm	**INVITED: TF1-MoA-5** Manufacturing-Scale Powder Atomic Layer Deposition for Battery Applications, ***Arrelaine Dameron***, Forge Nano Inc	
2:45pm		
3:00pm	**TF1-MoA-7** Thin Film Solid-State Electrodes for Electrochemical-Mechanical Coupling Experiments, ***M. Florencia Petracci (Graduate Student)***, *Bhuvsmita Bhargava, Yueming Song, David Stewart, Taeho Jung,* University of Maryland, College Park*; Alec Talin,* Sandia National Laboratories*; Gary Rubloff, Paul Albertus,* University of Maryland, College Park	
3:15pm	**TF1-MoA-8** Mapping Lithium Diffusion in Thin-Film V_2O_5 Using Raman Spectroscopy, ***Daniel MacAyeal (Graduate Student)***, University of Vermont*; Leopoldo Jose Tapia-Aracayo,* University of Maryland, College Park*; Spencer Caverly,* University of Maryland*; David Stewart, Gary Rubloff,* University of Maryland, College Park*; Alexander Kozen,* University of Vermont	
3:30pm		
3:45pm	**BREAK**	
4:00pm	**INVITED: TF2-MoA-11** Interface Engineering for the Highly Efficient Antimony Chalcogenides Thin Film Energy Devices, ***Feng Yan***, Arizona State University	**Thin Films** **Session TF2-MoA** **Thin Films for Energy II** **Moderators:** **Alexander Kozen**, University of Vermont
4:15pm		
4:30pm	**TF2-MoA-13** Developing R32 Barium Nickelate Thin Films for Catalysis, ***Ian Graham (Graduate Student)***, Georgia Institute of Technology*; Kayla Chuong, Anna Österholm, Lauren Garten,* Georgia Institute of Technology, USA	
4:45pm	**TF2-MoA-14** Nano Layers, Tera Goals : Atomic Layer Deposition of Ruthenium for the future Hydrogen Economy, ***Swapnil Nalawade (Graduate Student)***, *Shyam Aravamudhan, Mengxin Liu, Dhananjay Kumar,* North Carolina A&T State University	
5:00pm	**TF2-MoA-15** Sputter Deposition of Composite Membranes for High Performance Hydrogen Purification, ***Cameron Burst (Graduate Student)***, Colorado School of Mines*; Thomas Fuerst,* Idaho National Laboratory*; Doug Way, Colin Wolden,* Colorado School of Mines	
5:15pm		

Monday Afternoon, September 22, 2025

	Room 207 A W	
1:30pm	**INVITED: CPS+MS-MoA-1** Workforce Development in the Semiconductor Industry: A New National Approach, *Michelle Williams,* ***Mike Glavin***[1], SEMI Foundation	**CHIPS Act : Semiconductor Manufacturing Science and Technologies** **Session CPS+MS-MoA** **Semiconductor Manufacturing Workforce Development** **Moderators:** **Erica Douglas**, Sandia National Laboratories, **Timothy Gessert**, Gessert Consulting
1:45pm		
2:00pm		
2:15pm	**CPS+MS-MoA-4** Bridging the Talent Gap: Advancing Workforce Development for the Manufacturing and Semiconductor Industries, ***Sue Smith,*** Smart Automation Certification Alliance	
2:30pm	**CPS+MS-MoA-5** Partnership of Research University and Technical College for Microelectronics and Nanomanufacturing Workforce Development, ***Seung-Joon Paik,*** *Yu "Michelle" Wu,* Georgia Institute of Technology*; Jameel Hasan,* Georgia Piedmont Technical College	
2:45pm	**CPS+MS-MoA-6** an Accelerated Bachelor's Degree in Semiconductor Materials and Devices, *Susan Farhat,* Department of Chemical Engineering, Kettering University*; Ronald Kumon, Daniel Ludwigsen, Uma Ramabadran,* ***Cornel Rablau,*** *Ronald Tackett, Demet Usanmaz, Lihua Wang,* Department of Natural Sciences, Kettering University	
3:00pm	**INVITED: CPS+MS-MoA-7** Building a Regional Education and Workforce Development Infrastructure for Semiconductor Manufacturing, ***Robert Geer,*** NY CREATES	
3:15pm		
3:30pm	**CPS+MS-MoA-9** Workforce Development Opportunities in a University Nanofabrication Core Facility, ***Megan Dernberger,*** *Benjamin Schmidt, Christina McGahan, Sarah Ross, Sharon Weiss,* Vanderbilt University	
3:45pm	**BREAK**	
4:00pm	**CPS+MS-MoA-11** Challenges of Infusing Vacuum Technology into Two-Year Technology Programs, ***Elena Brewer,*** Erie Community College	
4:15pm	**CPS+MS-MoA-12** Review of AVS Educational Outreach Activities in the Context of the Chips in Science Act and its Related Workforce-Development Needs, ***Tim Gessert,*** Gessert Consulting LLC	

[1] **Workforce Development Keynote Lecture**

Monday Afternoon, September 22, 2025

	Room 208 W	
1:30pm	**INVITED: QS1-MoA-1** Superconductor-Semiconductor Epitaxy in Hyperdoped Germanium, ***Javad Shabani,*** NYU	**Quantum Science and Technology Mini-Symposium** **Session QS1-MoA** **Advanced Materials for Quantum Information Science** **Moderators:** **Kasra Sardashti**, University of Maryland College Park, **David Pappas**, Rigetti Computing
1:45pm		
2:00pm	**QS1-MoA-3** Molecular Beam Epitaxy of Germanium Quantum Wells with Epitaxial Aluminum, ***Jason Dong***, *Joshua Thompson, Chomani Gaspe, Riis Card, Kasra Sardashti,* Laboratory for Physical Sciences*; Shiva Davari Dolatabadi, Hugh Churchill,* University of Arkansas*; Kyle Serniak, Thomas Hazard,* MIT Lincoln Laboratory*; Christopher Richardson,* Laboratory for Physical Sciences	
2:15pm	**QS1-MoA-4** Epitaxy of Superconducting Germanium Thin Films for Integrated Quantum Electronics, ***Patrick Strohbeen***[1], New York University*; Julian Steele, Ardeshir Baktash,* university of queensland, Australia*; Alisa Danilenko,* new york university*; Axel Leblanc, Jechiel van Dijk,* New York University*; Yi-Hsun Chen, Lianzhou Wang,* university of queensland, Australia*; Salva Salmani-Rezaie,* Ohio State University*; Eugene Demler,* ETH Zurich, Switzerland*; Peter Jacobson,* university of queensland, Australia*; Javad Shabani,* New York University	
2:30pm	**QS1-MoA-5** Growth and Characterization of Thin-Film A15 Nb-Al Intermetallics for Superconducting Quantum Electronics, ***Joseph Falvo (Graduate Student)***[1], University of Maryland College Park*; Elizabeth Henry,* Clemson University*; Ashish Alexander,* University of Maryland*; Hussein Hijazi,* Rutgers University*; Ivan Lainez,* University of Maryland*; Leonard Feldman,* Rutgers University*; Kasra Sardashti,* Laboratory for Physical Sciences	
2:45pm	**QS1-MoA-6** High Purity Physical Vapor Deposition CaO Thin Films for Quantum Information Science, ***Jake DeChiara (Graduate Student)***, *Saeed Almishal,* Pennsylvania State University*; Jon-Paul Maria,* Pennsylvania State Univeristy	
3:00pm	**QS1-MoA-7** Extending the Specific Resistance of Alox Thin Films by Tuning Plasma Oxidation Time for Qis Devices, ***Runze Li (Graduate Student)***, University of Maryland, College Park*; Joshua Pomeroy,* National Institute of Standards and Technology	
3:15pm	**INVITED: QS1-MoA-8** Epitaxial Control of Magnetism and Superconductivity in Quantum Materials, ***Matthew Brahlek***, Oak Ridge National Laboratory	
3:30pm		
3:45pm	**BREAK**	
4:00pm	**QS2-MoA-11** Towards Reducing Dielectric Loss from Josephson Junctions in Superconducting Qubits, ***Aranya Goswami***, *Hung-Yu Tsao, Chia-Chin Tsai, Kyle Serniak, Jeffrey A. Grover, William D. Oliver,* Massachusetts Institute of Technology	**Quantum Science and Technology Mini-Symposium** **Session QS2-MoA** **Surface Engineering for Quantum Applications** **Moderators:** **Dave Pappas**, Rigetti Computing, **Drew Rebar**, Pacific Northwest National Laboratory
4:15pm	**QS2-MoA-12** HF Induced Degradation in High-Purity, Epitaxial Thin Film Niobium, ***Haozhi Wang,*** University of Maryland, College Park*; Tathagata Banerjee,* Cornell University*; Thomas Farinha,* University of Maryland, College Park*; Aubrey Hanbicki,* Laboratory for Physical Sciences*; Valla Fatemi,* Cornell University*; Benjamin Palmer, Christopher Richardson,* Laboratory for Physical Sciences	
4:30pm	**QS2-MoA-13** Reducing Losses in Transmon Qubits Using Fluorine-Based Etches , ***Michael Gingras***, *Bethany Niedzielski, Felipe Contipelli, Ali Sabbah, Kate Azar, Greg Calusine, Cyrus Hirjibehedin, David Kim, Jeff Knecht, Christopher O'Connell, Alexander Melville, Hannah Stickler, Mollie Schwartz, Jonilyn Yoder,* MIT Lincoln Laboratory*; William Oliver,* MIT*; Kyle Serniak,* MIT Lincoln Laboratory	
4:45pm	**QS2-MoA-14** Understanding and Mitigating Coherence and Frequency Fluctuations in Superconducting Transmon Qubits, ***Tanay Roy***, *Xinyuan You, Bektur Abdisatarov, Daniel Bafia, Mustafa Bal, David van Zanten, Alexander Romanenko, Anna Grassellino,* Fermi Lab	
5:00pm	**QS2-MoA-15** Platinum Encapsulation of Niobium and Tantalum Thin Films for Low-Loss Superconducting Qubit Interfaces, ***Ananya Chattaraj***, Brookhaven National Laboratory	

[1] **JVST Highlighted Talk**

Monday Afternoon, September 22, 2025

	Applied Surface Science - Room 209 B W **Session AS-MoA: Quantitative Surface Analysis I** **Moderators:** **Lyndi Strange**, Pacific Northwest National Laboratory	**Surface Science - Room 209 CDE W** **Session SS-MoA: Photo/Electrochemistry** **Moderators: Liney Arnadottir**, Oregon State University, **Rachael Farber**, University of Kansas
1:30pm	**INVITED: AS-MoA-1** Quantified Photoemission Using Ga Kα (9.25 keV) Hard X-Rays Applied to Advanced Materials, ***Ben Spencer***, *Abdulrhman Alsaedi, Liam Dwyer,* The University of Manchester, UK*; Benjamen Reed, David Cant, Alexander Shard,* National Physical Laboratory, U.K.*; Michael Baker, Alex Walton, Nicholas Lockyer, Wendy Flavell,* The University of Manchester, UK	**INVITED: SS-MoA-1** Plasmonic Catalysis: Opportunities, Challenges, and Unresolved Questions, ***Suljo Linic***, University of Michigan, USA
2:00pm	**AS-MoA-3** Quantification of Bulk MoS_2 and Characterization of Mo Oxides by Cr Ka-excited HAXPES : Issues and Tentative Improvements, ***Olivier Renault***, *Nicolas Gauthier, Mario Ghostine, Roman Charvier,* CEA-Leti, France*; Bruno Domenichini,* Université Bourgogne-France Comté, France	**SS-MoA-3** Effects of Electric Fields and Solvents on the Surface Chemistry of Catalysis and Electrocatalysis, ***Charles T. Campbell***, University of Washington
2:15pm	**AS-MoA-4** Routine, Integrated Ag-Lα Haxpes – Acquisition and Quantification, ***Miroslav Michlicek***, Thermo Fisher Scientific, CZ, Czechia*; Keith McCourt, Paul Mack,* Thermo Fisher Scientific, UK	**SS-MoA-4** In Air STM Observation of Au(111) Surface Disturbance Including Au Magic Fingers as Modified by Solvent Choice, ***Nazila Hamidi (Graduate Student)***, *Erin Iski, Dillon Dodge, Rowan Dirks, Lauren Hornbrook,* University of Tulsa
2:30pm	**AS-MoA-5** Non-Destructive Depth Profiling by Variable Energy PARXPS (VE-PARXPS), ***Paul Dietrich***, *Francesca Mirabella, Martin Breitschaft, Andreas Thißen,* SPECS Surface Nano Analysis GmbH, Germany	**SS-MoA-5** Size-Selected Pt Clusters on N-Implanted HOPG: Oxygen Reduction Reaction and the Effect of Nitrogen Anchor Sites, ***Lokesh Saravanan***, University of Utah*; Tsugunosuke Masubuchi,* Keio University, Japan*; Zihan Wang,* University of Utah*; Pavel Rublev, Yu Wei, Anastassia N Alexandrova,* University of California at Los Angeles*; Scott L Anderson,* University of Utah
2:45pm	**AS-MoA-6** Efficient, Non-Destructive Characterization of Buried Layer Chemistry - Introducing the Next-Generation High-Intensity Deep HAXPES Instrument, ***Marcus Lundwall***[1], *Tamara Sloboda, Dick Allansson,* Scienta Omicron, Sweden*; Daniel Beaton,* Scienta Omicron*; Susanna Eriksson,* Scienta Omicron, Sweden	**SS-MoA-6** Surface Analysis of Planetary Regolith Particles: X-Ray Photoelectron Spectroscopy Results from the Asteroid Bennu, ***Catherine Dukes***, *Lianis Reyes Rosa, Adam Woodson, Jackson Glass, Annabel Li,* University of Virginia*; Christopher Snead, Lindsay Keller,* NASA Johnson Space Center*; Michelle Thompson,* Purdue University*; Harold Connelly, Jr.,* Rowen University*; Dante Lauretta,* University of Arizona*; OSIRIS-REx Sample Analysis Team,* NASA
3:00pm	**AS-MoA-7** Quantification of the Carbon Hybridization State via C 1s XPS: Possibilities and Limitations, ***Filippo Mangolini***, The University of Texas at Austin*; Michael Walter,* Fraunhofer Institute for Mechanics of Materials IWM, Germany*; J. Brandon McClimon, Robert W. Carpick,* University of Pennsylvania*; Michael Moseler,* Fraunhofer Institute for Mechanics of Materials IWM, Germany	**INVITED: SS-MoA-7** X-Ray Photoelectron Spectroscopy informs on Hybrid Photoelectrode Surface Passivation and Durability, ***Jillian Dempsey***, University of North Carolina at Chapel Hill
3:15pm	**AS-MoA-8** Correlative XPS and EBSD with Cluster Ion Etching for Enhanced Surface Preparation, ***Simon Bacon***, *Helen Oppong-Mensah, Robin Simpson, Paul Mack, Tim Nunney,* Thermo Fisher Scientific, UK	
3:30pm	**AS-MoA-9** Enhanced Depth Profiling of Polymer Multi-Layer Samples Using Combined Femtosecond Laser Ablation and Cluster Ion Beams in XPS, ***Robin Simpson***[1], Thermo Fisher Scientific, UK*; Charlie Chandler, Mark Baker,* University of Surrey, UK*; Tim Nunney,* Thermo Fisher Scientific, UK	
3:45pm	**BREAK**	**BREAK**
4:00pm	**AS-MoA-11** Contribution of Imaging X-Ray Photoelectron Spectroscopy (Xps) to Characterize Spatial Chemical Distribution of Zno Nanoparticles in a Protective Sio2 Matrix for Luminescence Application, ***Vincent Fernandez***, IMN-CNRS, France*; Michel Féron,* LCC-CNRS, France*; Neal Fairley,* CasaXPS, France*; Myrtil Kahn,* LCC-CNRS, France*; Richard Clergereaux,* LPCE-CNRS, France*; Mireille Richard-Plouet,* IMN-CNRS, France	**SS-MoA-11** Investigation of the Interaction between Water Vapor and Ni Nanoparticles Supported Over Ceria, *Nishan Paudyal, Erik Peterson, Yinghui Zhou,* University of Wyoming*; Sanjaya Senanayake,* Brookhaven National Laboratory*;* ***Jing Zhou***[1], University of Wyoming
4:15pm	**AS-MoA-12** Uncertainties in XPS Elemental Quantification, ***Alexander Shard***, *Benjamen Reed, David Cant,* National Physical Laboratory, UK	**SS-MoA-12** The Effect of Surface Reaction Intermediates on the Interaction of Solvent Molecules with Pt(111) Model Catalyst, ***Valeria Chesnyak***, Oregon State University*; Arjan Saha,* Washington State University*; Marcus Sharp,* Univ of Washington*; Zbynek Novotny,* Pacific Northwest National Laboratory*; Nida Janulaitis, Charles T. Campbell,* University of Washington*; Zdenek Dohnalek,* Pacific Northwest National Lab*; Liney Arnadottir,* Oregon State Univ.
4:30pm	**AS-MoA-13** Revisiting Detector Linearity and Deadtime Correction for Photoelectron Spectrometers, ***Benjamen Reed***, *Alexander Shard,* National Physical Laboratory, U.K.	**SS-MoA-13** Mechanistic Insights into C–C Bond Formation in Photoinduced and Photocatalytic Reactions on Reducible and Non-Reducible Oxide Surfaces, *Aakash Gupta,* University of Central Fllorida*; Keith Blackman, Eric Segrest,* ***Mihai Vaida***, University of Central Florida
4:45pm	**AS-MoA-14** Beyond the Standard Elemental Analysis of Surfaces - What more can be done with XPS?, ***Donald Baer***, Pacific Northwest National Lab*; Merve Taner Camci,* Turkish Energy, Nuclear and Mineral Research Agency, Turkey*; David Cant,* National Physical Lab, UK*; Scott Chambers,* Pacific Northwest National Lab*; Hagai Cohen,* Weizmann Insti of Science, Israel*; Pinar Aydogan Gokturk,* Koc Univ., Turkey*; David Morgan,* Cardiff Univ. , HarwellXPS, UK*; Andrey Shchukarev,* Umeå Univ., Sweden*; Peter Sherwood,* Univ. of Washington*; Sven Tougaard,* Univ of Southern Denmark*; Sefik Suzer,* Bilkent Univ. Turkey*; John Watts,* Univ of Surrey, UK	**SS-MoA-14** Studying the Intermolecular Forces That Drive Magic Number Clustering, ***Alex Walter (Graduate Student)***, *S. Alex Kandel,* University of Notre Dame
5:00pm		**SS-MoA-15** Application of XPS to Detect Low-Energy Electron (1–25 eV) Irradiation-Induced DNA Degradation, ***Hao Yu***, Univ of Notre Dame*; João Pereira-da-Silva,* Univ NOVA de Lisboa, Portugal*; Jackson King, Thejaswini Basappa, Bo-An Chen, Pitambar Sapkota,* University of Notre Dame*; Filipe Ferreira da Silva,* Unive NOVA de Lisboa, Portugal*; Sylwia Ptasińska,* University of Notre Dame
5:15pm		**SS-MoA-16** Unmasking Local Phenomena in Electrochemistry through Scanning Electrochemical Cell Microscopy, ***Miguel Bernal***, *Dario Stacchiola,* Center for Functional Nanomaterials, BNL

[1] **JVST Highlighted Talk**

Monday Afternoon, September 22, 2025

	Room 209 F W	
1:30pm	**INVITED: BI1-MoA-1** Casting Light on Exceptional Biointerfaces, ***Joe Baio***, Oregon State University	**Biomaterial Interfaces** **Session BI1-MoA** **Functional Biomaterials and Sensing** **Moderators:** **Sapun Parekh**, University of Texas at Austin, **Rong Yang**, Cornell University
1:45pm		
2:00pm	**BI1-MoA-3** Molecular Modeling of Nucleic Acid-Based Nanomaterials, *Elizabeth Skelly,* University of North Carolina at Charlotte; ***Christina Bayard (Graduate Student)***, North Carolina State University; *Joel Jarusek,* University of Nebraska; *Benjamin Clark,* North Carolina State University; *Laura Rebolledo, Yasmine Radwan, Phong Nguyen, Melanie Andrade-Muñoz,* University of North Carolina at Charlotte; *Thomas Deaton,* North Carolina State University; *Alexander Lushnikov,* University of Nebraska; *Sharonda LeBlanc,* North Carolina State University; *Alexey Krasnoslobodtsev,* University of Nebraska; *Yaroslava Yingling,* North Carolina State University; *Kirill Afonin,* University of North Carolina at Charlotte	
2:15pm	**BI1-MoA-4** Surface-Immobilized Fibronectin Conformation Drives Synovial Fluid Adsorption and Film Formation, *Syeda Tajin Ahmed,* University of California Merced, United States Virgin Islands; *Ummay Honey, Lenka Vitkova, Diego Jaramillo Pinto, Katelyn Lunny, Warren Flores, Kaleb Cutter,* University of California Merced; *Yidan Wen, Kevin De France,* Queens University, Canada; ***Roberto Andresen Eguiluz***, University of California Merced	
2:30pm	**BI1-MoA-5** Growable Mycelial Coatings: A New Approach to Bio-Based Plastic Replacements, *Sandro Zier, Liza White,* ***Caitlin Howell***, University of Maine	
2:45pm	**BI1-MoA-6** Nanoparticle biosensing in 3D Cell culture , *Miriam Kael, Paul Stoddart,* Swinburne University of Technology, Australia; ***Sally McArthur***[1], Deakin University, Australia	
3:00pm	**BI1-MoA-7** Peptide-Polymer Mixtures Form Tunable Biomolecular Condensate Materials, *Tino Zhang*, ***Sapun Parekh***, University of Texas at Austin	
3:15pm		
3:30pm		
3:45pm	**BREAK**	
4:00pm	**BI2-MoA-11** Influence of Copper on the Establishment of Marine Biofilms, *Sara Tuck,* ***Kenan Fears***, U.S. Naval Research Laboratory	**Biomaterial Interfaces** **Session BI2-MoA** **Microbes and Biofilms** **Moderators:** **Joe Baio**, Oregon State University, **Caitlin Howell**, University of Maine
4:15pm	**BI2-MoA-12** Biofouling Prevention by Constant and Alternating Potentials, *Jana Schwarze, Emily Manderfeld,* ***Axel Rosenhahn***, Ruhr University Bochum, Germany	
4:30pm	**BI2-MoA-13** NO-Releasing Hybrid Material Coatings with Low Fouling Properties Against Pathogenic Bacteria, ***Luciana Natascha Herbeck (Graduate Student)***, *Samantha Muhring-Salamone, Regina Kopecz, Axel Rosenhahn,* Ruhr-University Bochum, Germany	
4:45pm	**BI2-MoA-14** Effect of Salts on the Aggregation and Strength of Protein-Based Underwater Adhesives, *Zachary Lamberty,* Naval Research Laboratory, Chemistry Division; *Chloe Skogg,* US Naval Academy; *Michael Wilson,* Purdue University; *Maryssa Beasley,* Naval Research Laboratory; *Abdon Vivas Tejada, Amarachi Peters, Elizabeth Yates,* US Naval Academy; ***Christopher So***, Naval Research Laboratory	

[1] **JVST Highlighted Talk**

Monday Evening, September 22, 2025

Plenary Lecture
Room Ballroom AD - Session PL-MoE
Plenary Session
Moderator: Stephanie Law, Pennsylvania State University

5:30pm **INVITED: PL-MoE-1** Interfaces are Everything! The Critical Role of Interface Control and Engineering for Next-Generation Quantum Technologies*,* ***Michael Manfra****,* Purdue University, Microsoft Quantum Lab West Lafayette

5:45pm

6:00pm

6:15pm

Tuesday Morning, September 23, 2025

	Room 201 ABCD W	
8:00am	**PS-TuM-1** Optimizing hfzro2 Film Thinning by Plasma Etching for Ferroelectric Memories , ***Vincent Michaud (Graduate Student)***, *Christelle Boixaderas, Laurent Grenouillet, Thierry Chevolleau,* CEA-University Grenoble Alps, France	**Plasma Science and Technology** **Session PS-TuM** **Advanced Memory, HARC, and Cryo Etching** **Moderators:** **Jeffrey Shearer**, Jeffrey Shearer, TEL Technology Center, America, LLC, **Christophe Vallee**, UAlbany
8:15am	**PS-TuM-2** Investigation of Hydrogen and Nitrogen Used as Etching Chemistry or Surface Treatment for Phase-Change Random Access Memory Patterning, ***Benjamin Fontaine***, STMicroelectronics, France; *Christelle Boixaderas, Jérôme Dubois,* CEA/LETI-University Grenoble Alpes, France; *Pascal Gouraud, Arnaud Rival,* STMicroelectronics, France; *Nicolas Posseme,* CEA/LETI-University Grenoble Alpes, France	
8:30am	**INVITED: PS-TuM-3** Does the Etching of Exotic Materials or the Implementation of Cryogenic Conditions Call Into Question the Fundamentals of Plasma-Surface Interaction?, ***Christophe Cardinaud***, *Tatiana Mbouja Signe, Felipe Cemin, Hiba Beji,* Nantes Université - CNRS-IMN, France; *Thomas Le Pape,* Nantes Université - CNRS-IMN France; *Aurélie Girard, Cédric Mannequin,* Nantes Université - CNRS-IMN, France	
8:45am		
9:00am	**PS-TuM-5** Charging Dynamics During Pulsed Plasma Etching of High Aspect Ratio Features in Dielectric Materials, ***Chenyao Huang (Graduate Student)***[1], *Yeon Geun Yook, Yifan Gui,* University of Michigan; *Steven C. Shannon,* North Carolina State University; *Mark J. Kushner,* University of Michigan	
9:15am	**PS-TuM-6** Controlled Cryogenic Silicon Etching Using Pulse-Modulated Platen RF Power, ***Zhitian Shi***, *Nikhil Tiwale, Ming Lu, Chang-Yong Nam,* Brookhaven National Laboratory	
9:30am	**PS-TuM-7** Etching Properties of Maskless Oxide/Nitride/Oxide/Nitride (ONON) Stacks with $C_4H_2F_6$-based Gas, ***Jong Woo Hong (Graduate Student)***, *Nam Il Cho, Geun Young Yeom,* Sungkyunkwan University (SKKU), Republic of Korea	
9:45am	**PS-TuM-8** Aspect Ratio Resolved Mass Spectrometry for Sticking Probability of Neutral Species in High Aspect Ratio Hole, *Takumi Kurushima, Takayoshi Tsutsumi, Makoto Sekine, Masaru Hori,* ***Kenji Ishikawa***, Nagoya University, Japan	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am	**PS-TuM-13** Twisting and Profile Distortion in High-Aspect Ratio Etching Processes, ***Prem Panneerchelvam***, KLA Corporation; *Jin Xie,* KLA Corporation, China; *Chad Huard, Mark Smith,* KLA Corporation	
11:15am	**PS-TuM-14** Detection of Etch Products during the SiN_x Etching in a HF Plasma with *In Situ* Mass Spectrometry, *Xue Wang, Md Tanzid Hossain,* Colorado School of Mines; *Prabhat Kumar, Thorsten Lill, Harmeet Singh, Mingmei Wang, Taner Ozel,* Lam Research Corporation; ***Sumit Agarwal***[1], Colorado School of Mines	
11:30am	**PS-TuM-15** Ion-Enhanced Synergistic Reactions in Cryogenic Plasma Etching with HF-Contained Gases, ***Shih-Nan Hsiao***, *Yusuke Imai, Sekine Makoto,* Nagoya University, Japan; *Ryutaro Suda, Yuki Iijima, Yoshihide Kihara,* Tokyo Electron Miyagi Limited, Japan; *Masaru Hori,* Nagoya University, Japan	
11:45am	**PS-TuM-16** Mechanistic Insights Into Cryogenic Plasma Etching of Sio2: Temperature, Power and Surface Reaction Dynamics, ***Yeon Geun Yook (Graduate Student)***, University of Michigan; *Hyunjae Lee, Sang Ki Nam,* Mechatronics Research, Samsung Electronics Co, Republic of Korea; *Mark J. Kushner,* University of Michigan	
12:00pm	**PS-TuM-17** Ammonium Fluorosilicate Salt Layer Dynamics during Etching of SiN_x in a HF Plasma and Strategies for Controlling SiN_x to SiO_2 Etch Selectivity, ***Md Tanzid Hossain (Graduate Student)***, *Xue Wang,* Colorado School of Mines; *Prabhat Kumar, Thorsten Lill, Harmeet Singh,* LAM Research; *Mingmei Wang,* Lam Research; *Taner Ozel,* LAM Research; *Sumit Agarwal,* Colorado School of Mines	

[1] **JVST Highlighted Talk**

Tuesday Morning, September 23, 2025

	Room 205 ABCD W	
8:00am	**INVITED: VT1-TuM-1** ORNL Second Target Station (STS) Vacuum System, ***Austin Chaires,*** Oak Ridge National Laboratory, USA	**Vacuum Technology** **Session VT1-TuM** **Measurement, Simulations and Accelerator Vacuum Systems** **Moderators:** **Jacob Ricker**, NIST, **Julia Scherschligt**, National Institute of Standards and Technology
8:15am		
8:30am	**VT1-TuM-3** Robotic Assembly of SRF Cavity Pair, ***Adam Duzik,*** *Roger Ruber,* Jefferson Laboratory	
8:45am	**VT1-TuM-4** Emergency Vacuum Repairs in an Aging Accelerator: Case Studies and Lessons Learned, ***Marcy Stutzman,*** Jefferson Lab	
9:00am	**INVITED: VT1-TuM-5** Commissioning and Early Operations of the APS-Upgrade Storage Ring Vacuum System, ***Jason Carter,*** Argonne National Laboratory, USA	
9:15am		
9:30am	**VT1-TuM-7** Design and Construction of a Vacuum End Station for Ion Irradiation in Magnetic Field Environments at the Tennessee Ion Beam Materials Laboratory, ***Henry Osborne (Graduate Student),*** University of Tennessee Knoxville*; Kendall Trellue,* University of New Mexico*; Miguel Crespillo,* University of Tennessee Knoxville*; Eric Lang,* University of New Mexico*; Khalid Hattar,* University of Tennessee Knoxville	
9:45am	**VT1-TuM-8** Assembly, Conditioning and Installation of ALS-U Accumulator Ring Vacuum System, ***Sol Omolayo,*** Lawrence Berkeley Lab, University of California, Berkeley*; Thomas Gaucher, Raul Mascote,* Lawrence Berkeley Lab	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am	**VT2-TuM-13** Enabling Vacuum Process Monitoring with Time-of-Flight Spectroscopy, ***Marco John,*** *Klaus Bergner, Sebastian Hüttl, Kristian Kirsch, Andreas Trützschler,* VACOM Vakuum Komponenten & Messtechnik GmbH, Germany	**Vacuum Technology** **Session VT2-TuM** **Measurement, Simulations and Accelerator Vacuum Systems** **Moderators:** **Gerardo Brucker**, MKS Instruments, Inc., **Yev Lushtak**, Lawrence Berkeley Lab
11:15am	**VT2-TuM-14** Update on Fixed Length Optical Cavity (FLOC) Pressure Calibration Standard for Calibration of Military and Commercial Aircraft, ***Jacob Ricker,*** *Kevin Douglass, Thinh Bui, Jay Hendricks, Jay H. (Fed) <jay.hendricks@nist.gov>,* NIST	
11:30am	**VT2-TuM-15** Single-Laser Optical Pressure Measurements to Support Air Data Calibration, ***Kevin Douglass,*** *Thinh Bui, Jacob Ricker, Jay Hendricks,* National Institute of Standards & Technology	
11:45am	**VT2-TuM-16** Radiometric Force Due to Accommodation Coefficient of Gas-Surface Interaction, ***Felix Sharipov,*** Universidade Federal do Paraná, Physics Department, Brazil*; Benjamin Schafer,* Harvard University	
12:00pm	**VT2-TuM-17** Thermal Transpiration: Beyond Takaishi and Sensuiλ, ***Robert Berg,*** National Institute of Standards and Technology (NIST)	

Tuesday Morning, September 23, 2025

	Room 206 A W	
8:00am	**INVITED: NS1-TuM-1** Advancing Scanning Probe Microscopy as a Tool for Nanoscale Scientific Discovery with AI, ***Rama Vasudevan***, *Ganesh Narasimha, Jawad Chowdhury, Soumendu Bagchi, Yongtao Liu,* Oak Ridge National Laboratory	**Nanoscale Science and Technology** **Session NS1-TuM** **AI for Material Discovery and Characterization** **Moderators:** **Yongtao Liu**, ORNL, **Son Le**, University of Maryland
8:15am		
8:30am	**NS1-TuM-3** Understanding and Controlling Atomic Transformations in 2D Materials Through in situ STEM, ***Raymond Unocic***[1], *Caitlyn Obrero,* North Carolina State University*; Kevin Roccapriore,* AtomQ*; Ayana Ghosh,* Oak Ridge National Laboratory*; Maxim Ziatdinov,* Pacific Northwest National Laboratory*; Sergei Kalinin,* University of Tennessee Knoxville*; Matthew Boebinger,* Oak Ridge National Laboratory, USA	
8:45am	**NS1-TuM-4** Advancing Autonomous Experimentation with Human-AI Synergy and Cross-Platform Integration*,* ***Yongtao Liu***, Oak Ridge National Lab	
9:00am	**NS1-TuM-5** Nanovision: An Integrated Platform for Two–Dimensional Material Discovery and Device Assembly, ***Son Le***[1], *Jeffrey Schwartz,* Laboratory for Physical Sciences*; Ruihao Ni, You Zhou,* University of Maryland, College Park*; Karen Grutter, Aubrey Hanbicki, Adam Friedman,* Laboratory for Physical Sciences	
9:15am		
9:30am	**INVITED: NS2+2D-TuM-7** Generalized Defect Quantification of 2D Materials with Atomic Force Microscopy*,* ***Matthew Rosenberger***, University of Notre Dame	**Nanoscale Science and Technology** **Session NS2+2D-TuM** **Multimodal Techniques in Surface and Interface Engineering at the Nanoscale** **Moderator:** **Mausumi Mahapatra**, Loyola University Chicago
9:45am		
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am	**NS2+2D-TuM-13** Excess Barrier Height Unlocks Andreev Reflection in Scanning Tunneling Microscopy, ***Petro Maksymovych***, Clemson University*; Wonhee Ko,* University of Tennessee Knoxville*; Jose Lado,* Aalto University, Finland	
11:15am	**NS2+2D-TuM-14** Dynamic Evolution of Rh/Fe_3O_4(001) Catalysts Under Hydrogen Conditions*,* ***Mausumi Mahapatra***, Loyola University Chicago*; Marcus Sharp, Zdenek Dohnalek, Christopher Lee, Yifeng Zhu, Oliver Gutiérrez, Bruce Kay,* Pacific Northwest National Laboratory	
11:30am	**NS2+2D-TuM-15** Hybrid ALD-MLD HfOx Thin Films: The Role of Carbon for Memristive Application*,* ***Soham Shirodkar (Graduate Student)***, *Dushyant Narayan, Minjong Lee, Dan Le,* University of Texas at Dallas*; Jacob N. Rohan,* Cerfe Labs, Austin*; Jiyoung Kim,* University of Texas at Dallas	
11:45am	**NS2+2D-TuM-16** Quantitative Comparative Force Spectroscopy on Molecules*, Xinzhe Wang,* Yale University*; Percy Zahl,* Brookhaven National Laboratory*; Jara Trujillo Mulero,* Universidad Autonoma de Madrid, Spain*; Hailiang Wang,* Yale University*; Rubén Pérez,* Universidad Autonoma de Madrid, Spain*; Eric Altman,* ***Udo Schwarz***, Yale University	
12:00pm	**NS2+2D-TuM-17** Thermal Strain-Induced Nanogap Formation in Monolayer MoS_2 during CVD Growth*,* ***Seonha Park (Graduate Student)***, *Sieun Jang, Songkil Kim,* School of Mechanical Engineering, Pusan National University, Republic of Korea	

[1] **JVST Highlighted Talk**

Tuesday Morning, September 23, 2025

	Room 206 B W	
8:00am		**Thin Films** **Session TF1+EM-TuM** **Thin Films for Energy III** **Moderators:** **Feng Yan**, Arizona State University
8:15am	**TF1+EM-TuM-2** ALD NASICON/TiO_2 Nanocomposite Electrode with Electrochemical Phase Control for High Energy and Power Density Selectivity, ***Daniela R. Fontecha (Graduate Student)***, *Sangbok Lee,* University of Maryland, College Park*; Alexander C. Kozen,* University of Vermont*; Gary W. Rubloff, Keith E. Gregorczyk,* University of Maryland, College Park	
8:30am	**TF1+EM-TuM-3** Laser Raster Pattern Control for Uniform Deposition of Hybrid Organic-Inorganic Perovskites via RIR-MAPLE, ***Joshua Ayeni (Graduate Student)***, *Adrienne Stiff-Roberts,* Duke University	
8:45am	**TF1+EM-TuM-4** Role of Thermodynamics for Low-temperature Processing of Perovskite Chalcogenides: A Combined Approach of Density Functional Theory and Experiment, ***Ramji Velayutham (Graduate Student)***, *Susmita Jana, Kumar Shwetabh, Birabar Ranjit Kumar Nanda, Surendra Anantharaman,* Indian Institute of Technology Madras, India	
9:00am	**TF1+EM-TuM-5** Alloyed SnO2-Nb2O5 ALD Films for Energy Applications, *Daniel Macayeal, Ian Christiansen, William Rekas, Madison Cooney, Elijah Burlinson, Yubin Han,* ***Alexander Kozen***, University of Vermont	
9:15am	**TF1+EM-TuM-6** Femtosecond Laser Ablation (fs-LA) XPS Depth Profiling of Lead Halide Perovskite Thin Film Solar Cells for Space Applications, ***Charlie Chandler (Graduate Student)***[1], University of Surrey, UK*; Dhilan Devadasan, Simon Bacon,* Thermo Fisher Scientific, UK*; Jae Yun,* University of Surrey, UK*; Hongjae Shim,* University of New South Wales, Australia*; Helen Park,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea*; Tim Nunney,* Thermo Fisher Scientific, UK*; Mark Baker,* University of Surrey, UK	
9:30am	**TF1+EM-TuM-7** Ambient Degradation Mechanism in Halide Perovskite Cs2AgBiCl6 Revealed by ATR-FTIR, ***Pulkita Jain (Graduate Student)***[2], *Seda Sarp, Eray Aydil,* New York University	
9:45am	**TF1+EM-TuM-8** High Rate Low Temperature Processing of Cu-chalcopyrite Semiconductors for Solar Cell Applications, *Thomas Lepetit,* Institut des materiaux de Nantes Jean Rouxel, France*; Nicolas Barreau,* Institut des Materiaux de Nantes Jean Rouxel, France*; Sylvain Marsillac, Deewakar Poudel,* Old Dominion University*; Thamer Alaoui, Leo Choubrac, Ludovic Arzel,* Universite de Nantes, France*; Fabien Pineau,* CNRS Photovoltaics, France*;* ***Angus Rockett***, Colorado School of Mines, US	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am	**INVITED: TF2-TuM-13** Synthesis of Electrically Conductive Metal-Organic Framework Thin Films, ***Sarah Park***, Pohang University of Science and Technology (POSTECH), Republic of Korea	**Thin Films** **Session TF2-TuM** **VSHOP I - Porous Framework Materials & Membranes** **Moderators: Siamak Nejati**, University of Nebraska-Lincoln, **Junjie Zhao**, Zhejiang University, China
11:15am		
11:30am	**TF2-TuM-15** Selective Breathing Behavior in Thin Films of Microporous Coordination Polymers, ***Greg Szulczewski***, *Hallie Matherne,* The University of Alabama	
11:45am	**TF2-TuM-16** Atomic Layer Deposition for Pore Engineering in Covalent Organic Framework Thin Films for Enhanced Membrane Gas Separation, *Zhiwen Chen,* ***Junjie Zhao***, Zhejiang University, China	
12:00pm	**TF2-TuM-17** Synthesizing Hydrophilic Membranes for PFAS Removal via Molecular Layer Deposition, ***Joelle V. Scott (Graduate Student)***, *Mathangi Venkatesh, Jocelyne Booth, David S. Bergsman,* University of Washington	

[1] **JVST Highlighted Talk**

[2] **AVS Graduate Research Awardee**

Tuesday Morning, September 23, 2025

	Room 207 A W	
8:00am		**Electronic Materials and Photonics** **Session EM1+AP+CPS+MS+PS+QS+SM+TF-TuM** **Emerging Frontiers in Quantum Materials and Devices** **Moderator:** **Mollie Schwartz**, MIT Lincoln Laboratory
8:15am		
8:30am	**EM1+AP+CPS+MS+PS+QS+SM+TF-TuM-3** Rapid, Atomic-Scale Smoothing of GaSb(111)A Surfaces During Molecular Beam Epitaxy, ***James Rushing***, *Paul Simmonds,* Tufts University	
8:45am	**EM1+AP+CPS+MS+PS+QS+SM+TF-TuM-4** Benchmarking Different NbTiN Sputtering Methods for 300 mm CMOS-compatible Superconducting Digital Circuits, *Adham Elshaer*[1], ***Jean-Philippe Soulié***, *Daniel Perez Lozano, Gilles Delie, Ankit Pokhrel, Benjamin Huet,* IMEC Belgium*; Margriet J. Van Bael,* KU Leuven and Imec, Belgium*; Daan Buseyne,* KU Leuven, Belgium*; Blake Hodges, Seifallah Ibrahim, Sabine O'Neal,* Imec USA*; Zsolt Tökei,* Imec Belgium*; Anna Herr, Quentin Herr,* Imec USA	
9:00am	**INVITED: EM1+AP+CPS+MS+PS+QS+SM+TF-TuM-5** Controlling the Properties of Epitaxially Grown Topological Semimetals, ***Kirstin Alberi***, National Renewable Energy Laboratory	
9:15am		
9:30am	**EM1+AP+CPS+MS+PS+QS+SM+TF-TuM-7** Photon Down-Conversion of Yb-Doped CsPb(Cl1-xBrx)3 to Low-bandgap Metal Halide Perovskites, ***Yutong Ren***[1], Princeton University*; Igal Levine,* The Hebrew University of Jerusalem, Israel*; Dan Oron, David Cahen,* Weizmann Institute of Science, Israel*; Antoine Kahn,* Princeton University	
9:45am	**EM1+AP+CPS+MS+PS+QS+SM+TF-TuM-8** Molecular Beam Epitaxy Growth of $InAs_{1-x}Bi_x$ on GaSb for Topological Insulating States, ***Merve Baksi***, *James Rushing, Xikae Xie, Avery Hanna, Larry Qui, Ekow Williams, Paul J. Simmonds,* Tufts University	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am	**EM2+AP+QS+TF-TuM-13** Structural and Electronic Properties of CdSexTe1-x /CdTe thin-film photovoltaic devices: Carrier Dynamics Analysis by Charge Carrier Collection Efficiency, ***Philip (Sanghyun) Lee***, University of Kentucky*; Kent Price,* Morehead State University	**Electronic Materials and Photonics** **Session EM2+AP+QS+TF-TuM** **Evolution of Materials and Devices for Energy Harvesting and Conversion** **Moderators:** **Seth King**, University of Wisconsin - La Crosse, **Parag Banerjee**, University of Central Florida
11:15am	**EM2+AP+QS+TF-TuM-14** Analysis of $KNbo_3$ Crystal Structure Fabricated on $LiNbO_3$ and $LiTaO_3$ Substrate for Piezoelectric Sensors and Devices Applications, ***LAY THITHI***, *Asuki Hagiwara, Ryotsuke Arai,* Josai University, Japan	
11:30am	**INVITED: EM2+AP+QS+TF-TuM-15** Modelling the Surface Electronic Properties of Catalytic Condenser for Programmable Reactions, ***Lars Grabow***, *Shengguang Wang,* University of Houston*; Kaida Liu, Ulrick Gaillard,* University of Minnesota*; Rohit Punyapu, Rachel Getman,* Ohio State University*; Matthew Neurock,* University of Minnesota	
11:45am		

[1] **JVST Highlighted Talk**

Tuesday Morning, September 23, 2025

	Room 208 W	
8:00am	**QS1-TuM-1** Investigating Processing Spaces of Epitaxially Grown Nitride Materials with Quantum and Conventional Supervised Learning, ***Andrew Messecar (Graduate Student)***[1], Western Michigan University; *Kevin Vallejo,* Idaho National Laboratory; *Steven Durbin,* University of Hawai'i at Mānoa; *Brelon May,* Idaho National Laboratory; *Robert Makin,* Western Michigan University	**Quantum Science and Technology Mini-Symposium** **Session QS1-TuM** **Quantum Simulations and Quantum-Inspired Technologies** **Moderator:** **Andre Schleife**, University of Illinois at Urbana-Champaign
8:15am	**QS1-TuM-2** Quantum Simulation of Spin-Current Autocorrelation Function, ***Yi-Ting Lee (Graduate Student)***, University of Illinois at Urbana Champaign; *Bibek Pokharel,* IBM, T.J. Watson Research Center; *Arnab Banerjee,* Purdue University; *Andre Schleife,* University of Illinois at Urbana-Champaign; *Jeffrey Cohn,* IBM Almaden Research Center	
8:30am	**INVITED: QS1-TuM-3** Quantum Information Processing Stack: From Bottom to Top and Back, *Sophia Economou,* ***Karunya Shirali,*** Virginia Tech	
8:45am		
9:00am		
9:15am	**QS1-TuM-6** Quantum-Enhanced Communication Network Routing in Cyber-Physical Power Systems, *Shuyang Ma,* ***Yan Li,*** Penn State University	
9:30am	**QS1-TuM-7** Floquet-ADAPT-VQE: A Quantum Algorithm to Simulate Non-Equilibrium Physics in Periodically Driven Systems, ***Abhishek Kumar,*** *Karunya Shirali, Nicholas J. Mayhall, Sophia E. Economou, Edwin Barnes,* Virginia Tech	
9:45am	**QS1-TuM-8** Flash Session ***Arsh Jha,*** North Carolina Central University ***Kiana Reed,*** Laboratory for Physical Sciences	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am	**INVITED: QS2-TuM-13** NIST on a Chip, Quantum-Based Sensors for Metrology in the Quantum Era, ***Jay Hendricks,*** National Institute of Standards and Technology (NIST)	**Quantum Science and Technology Mini-Symposium** **Session QS2-TuM** **Quantum Foundries, Educational Initiatives, Sensing and Metrology** **Moderators:** **Ekta Bhatia**, NY CREATES, **Haozhi Wang**, University of Maryland College Park
11:15am		
11:30am	**QS2-TuM-15** RF Imaging of Sub-Surface Defects in Si(100) with an STM Tip-Induced Quantum Dot, ***Jonathan Marbey,*** *Michael Dreyer, Matthew Brooks,* University of Maryland; *Omadillo Abdurazakov, Yun-Pil Shim,* University of Texas at El Paso; *Robert Butera,* Laboratory for Physical Sciences (LPS)	
11:45am	**INVITED: QS2-TuM-16** Pushing the Boundaries of Coherence in Superconducting Quantum Systems at the SQMS Center for Computing, Sensing, and Metrology, ***Tanay Roy,*** Fermi Lab	
12:00pm		

[1] **AVS Dorothy M. and Earl S. Hoffman Scholarship Recipient**

Tuesday Morning, September 23, 2025

	Applied Surface Science **Room 209 B W - Session AS-TuM** **Surface Characterization of Energy Materials** **Moderators: Jodi Grzeskowiak**, TEL Technology Ct, America, LLC, **Benjamen Reed**, National Physical Laboratory, UK	**Surface Science** **Room 209 CDE W - Session SS+2D-TuM** **Complex Phenomena on Surfaces** **Moderators: Te-Yu Chien**, University of Wyoming, **Bo-Hong Liu**, National Synchrotron Radiation Research Center, Taiwan
8:00am		**INVITED: SS+2D-TuM-1** Atomically Precise Synthesis and Characterization of Defect Structures in Graphene, ***An-Ping Li,*** Oak Ridge National Laboratory
8:15am		
8:30am	**INVITED: AS-TuM-3** Solar Energy from a Big Picture Perspective to Nanoscale Insights via TOF-SIMS, ***Steven P. Harvey,*** NREL	**SS+2D-TuM-3** Fabrication of Graphene Nanoribbons/Organic Molecules Interface, ***A.M. Shashika D. Wijerathna (Graduate Student),*** *Markus Zirnheld,* Old Dominion University; *He Zhao,* Central South University, China; *Rockwell Li,* Old Dominion University; *Pingshan Wang,* Central South University and Guangzhou University, China; *Yiming Li,* Central South University, China; *Yuan Zhang,* Old Dominion University
8:45am		**SS+2D-TuM-4** Visualizing the Products of Scattering at Surfaces: Hot Transient Motion of N on Ru(0001) and Coverage Dependent Mobility and Placement of O on Moiré Graphene, ***Joshua Wagner (Graduate Student)***[12], *Steven Sibener,* University of Chicago
9:00am	**AS-TuM-5** Introduction of Cryogenic X-Ray Photoelectron Spectroscopy for Chemical Analysis of Sensitive Battery Interfaces, ***Sanzeeda Baig Shuchi (Graduate Student)***[3], *Yi Cui, Stacey Bent,* Stanford University	**SS+2D-TuM-5** Oxygen Diffusion Dynamics on a Rh(111)/(322) Multifaceted Surface, ***Alexis Gonzalez (Graduate Student),*** *Elizabeth Serna-Sanchez, Maxwell Gillum, Stephanie Danahey, Dan Killelea,* Loyola University Chicago
9:15am		**SS+2D-TuM-6** CO Adsorption on Gr/Ni(111) Single Point Defects, ***Francesco Armillotta***[4], EPFL, Switzerland
9:30am	**AS-TuM-7** Surface and Bulk Characterization of Organic Semiconductors Using XPS and UPS Techniques, ***Jonathan Counsell,*** *Liam Soomary,* Kratos Analytical Limited, UK; *Chris Moffitt,* Kratos Analytical Inc.	**INVITED: SS+2D-TuM-7** Spin and Transport in Graphene Nanostructures with π-Magnetism, ***Thomas Frederiksen,*** Donostia International Physics Center (DIPC), Spain
9:45am	**AS-TuM-8** "XPS? Never Heard of It!" - The Consequences of Choosing Incorrect Analytical Techniques When Characterizing Problem Polymer Surfaces!, ***Brian Strohmeier,*** Surface Science Solutions, LLC	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**AS-TuM-13** Investigations of the Solid-Electrolyte Interface in an All-Solid-State Battery Using ToF-SIMS, ***Gabriel Parker (Graduate Student)***[5], *Chanho Kim, Yaunshun Li, Guang Yang, Xiao-Ying Yu,* Oak Ridge National Laboratory, USA	**INVITED: SS+2D-TuM-13** Simultenous Electron Spectroscopy and X-Ray Scattering on Model Ceria Catalysts, ***Baran Eren,*** Weizmann Institute of Science, Israel
11:15am	**AS-TuM-14** Study of the Solid Electrolyte Interface Formation at Hard Carbon Electrodes in Sodium-Ion Batteries, *David Schaefer,* Justus Liebig University Giessen, Germany; *Sven Daboss, Christine Kranz,* Ulm University, Germany; ***Marcus Rohnke,*** Justus Liebig University Giessen, Germany	
11:30am	**AS-TuM-15** Surface Sensitive Chemical Imaging of Lithium Materials for Battery Applications by Auger Electron Spectroscopy, ***Juergen Scherer,*** Physical Electronics USA; *Masahiro Terashima, Kazutoshi Mamiya, Shin-ichi Iida,* ULVAC-PHI, Japan	**SS+2D-TuM-15** Vibrational Spectroscopic Identification of Carbon Absorbed Beneath the Metal Surface, ***Santosh K. Singh***[4], *Volkan Cinar, Sylvia T. Ceyer,* Massachusetts Institute of Technology
11:45am	**AS-TuM-16** Chemical and Elemental Analysis of Annealed Porous Transport Electrodes via X-ray Photoelectron Spectroscopy, ***Lonneke van Eijk (Graduate Student),*** *Jayson Foster,* Colorado School of Mines; *Lei Ding, Weitian Wang, Feng Yuan Zhang,* University of Tennessee Knoxville; *Adam Paxson,* PlugPower; *Svitlana Pylypenko,* Colorado School of Mines	**SS+2D-TuM-16** Pt-Sn Catalysts for Selective Hydrogenation of Furfural, ***Donna Chen,*** *Sharfa Farzandh,* University of South Carolina; *Wenrui Chai, Katherine Mader, Graeme Henkelman,* University of Texas at Austin; *Mengxiong Qiao,* University of South Carolina
12:00pm	**AS-TuM-17** X-Ray Photoelectron Spectroscopy Challenges: Practical Solutions to Peak Overlap in Battery Electrodes and Catalysts, ***Lyndi Strange***[4], Pacific Northwest National Laboratory; *Donald Baer, Mark Engelhard,* Pacific Northwest National Lab	**SS+2D-TuM-17** Bimodal Sputter Depletion of Adsorbed Na from Granular, Regolith-Like, Olivine Targets, ***Adam Woodson,*** *Cassandre Morel, Noah Jäggi, Catherine Dukes,* University of Virginia

[1] **AVS Dorothy M. and Earl S. Hoffman Awardee**
[2] **SSD Morton S. Traum Award Finalist**
[3] **AVS Nellie Yeoh Whetten Awardee**
[4] **JVST Highlighted Talk**
[5] **AVS Graduate Research Awardee**

Tuesday Morning, September 23, 2025

	Room 209 F W	
8:00am	**INVITED: EL-TuM-1** Crystal Symmetry and Spectroscopic Ellipsometry, ***Gerald Jellison,*** Oak Ridge National Laboratory	**Spectroscopic Ellipsometry** **Session EL-TuM** **Spectroscopic Ellipsometry Analysis Methods** **Moderators:** **Tino Hofmann**, University of North Carolina at Charlotte, **Marcel Junige**, University of Colorado at Boulder
8:15am		
8:30am	**EL-TuM-3** Ellipsometric Reality Check: Are My Results Correct?, ***Maxwell Junda,*** Covalent Metrology	
8:45am	**EL-TuM-4** Spectroscopic Ellipsometry Based on Frequency Division Multiplexing, ***Jongkyoon Park,*** KRISS, Republic of Korea	
9:00am	**INVITED: EL-TuM-5** Advanced Electromagnetic Modeling Techniques for Metamaterial Platforms, ***Ufuk Kilic,*** University of Nebraska-Lincoln, USA	
9:15am		
9:30am	**EL-TuM-7** Evaluation of Scatterometry for High Aspect Ratio Deep Trench Monitoring: A Rigorous Coupled-Wave Analysis Approach, ***Martial Santorelli (Graduate Student),*** *Justine Grasland, Delphine Le Cunff,* ST Microelectronics, France*; Marceline Bonvalot,* Laboratoire des Technologies de la Microelectronique, CNRS-LTM, France*; Madec Querré,* ST Microelectronics, France*; Jean-Hervé Tortai,* Laboratoire des Technologies de la Microelectronique, CNRS-LTM, France	
9:45am		
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	

Tuesday Morning Break, September 23, 2025

Exhibitor Technology Spotlight Sessions
Room Hall A - Session EW-TuMB
Exhibitor Technology Spotlight Session I
Moderator: Christopher Moffitt, Kratos Analytical Inc

10:00am		
10:15am	**EW-TuMB-2** New Developments for Surface Analysis from Thermo Fisher Scientific*,* ***Tim Nunney****, Robin Simpson, Paul Mack, Simon Bacon, Dhilan Devadasan,* Thermo Fisher Scientific, UK*; Charlie Chandler, Mark Baker,* University of Surrey, UK	
10:30am	**EW-TuMB-3** Enviro Standard Analytical Tools: New Developments and Applications*, Francesca Mirabella, Stefan Böttcher, Paul Dietrich,* ***Andreas Thißen****,* SPECS Surface Nano Analysis GmbH, Germany	
10:45am	**EW-TuMB-4** Small Lab-Size Cryogen-Free Low Temperature SPM with Magnetic Field*,* ***Juergen Koeble****,* Scienta Omicron GmbH, Germany*; Andrew Yost,* Scienta Omicron Inc	

	Exhibitor Technology Spotlight Sessions **Room Hall A - Session EW-TuL** **Exhibitor Technology Spotlight Session II** **Moderator: Christopher Moffitt**, Kratos Analytical Inc	
12:15pm		
12:30pm	**EW-TuL-2** RHK Technology: 37 Years of Continuous SPM Innovation, ***Adam Kollin,*** RHK Technology, Inc.	
12:45pm	**EW-TuL-3** Kratos Axis Supra+ -- Automated Laboratory XPS Analysis, ***Chris Moffitt,*** Kratos Analytical Inc.	
1:00pm	**EW-TuL-4** Physical Electronics Spotlight Session: Driving Discoveries Through Surface Analysis: Innovative Technologies for Thin Film Characterization, ***Amy Ferryman,*** Physical Electronics	

Tuesday Afternoon, September 23, 2025

	Room 201 ABCD W	
2:15pm	**INVITED: PS1-TuA-1** Critical Plasma Processing Steps for Fusion and Hybrid Bonding Applications, ***James Papanu,*** Tokyo Electron Corporate Innovation Division / Tokyo Electron Kyushu, Ltd., Japan*; Scott Lefevre, Jeffrey Shearer,* TEL Technology Center America*; Michiko Nakaya,* Tokyo Electron Corporate Innovation Division, Japan*; Yousuke Mine, Yutaka Yamasaki,* Tokyo Electron Kyushu, Ltd., Japan*; Takayuki Ishii,* Tokyo Electron Kyushu, Ltd, Japan*; Christopher Netzband,* TEL Technology Center America*; Yuji Mimura,* Tokyo Electron Kyushu, Ltd., Japan*; Chikashi Aoyagi,* Tokyo Electron Ltd., Japan*; Ilseok Son, Angelique Raley, Sitaram Arkalgud,* TEL Technology Center America	**Plasma Science and Technology** **Session PS1-TuA** **Plasmas in Advanced Packaging** **Moderators:** **Catherine Labelle**, Intel Corporation, **Eric Miller**, IBM
2:30pm		
2:45pm	**INVITED: PS1-TuA-3** Plasma processing opportunities in the era of Chiplet and Advanced Packaging for AI application, ***Fee Li Lie****, Shravana Kumar Katakam, Yann Mignot, Eric Perfecto,* IBM Research Division, Albany, NY	
3:00pm		
3:15pm		
3:30pm	**BREAK**	
3:45pm		
4:00pm	**INVITED: PS2-TuA-8** Fluorinated Gases in Plasma Etch: Challenges, Accomplishments, and Opportunities, ***David Speed,*** GlobalFoundries	**Plasma Science and Technology** **Session PS2-TuA** **Sustainability and Plasmas** **Moderators:** **Phillipe Bezard**, IMEC Belgium, **Sara Paolillo**, IMEC Belgium
4:15pm		
4:30pm	**PS2-TuA-10** Kinetic Study of Microwave-Powered, Atmospheric-Pressure Hydrogen Plasma Reduction of Iron Oxide, ***Daniel Ellis (Graduate Student)***[1]*, Vivek Pachchigar, Jazline Rebollar,* University of Illinois Urbana-Champaign*; Nabiel Abuyazid,* Lam Research Corporation*; Necip Üner,* Middle East Technical University, Turkey*; Ivan Shchelkanov,* Starfire Industries, LLC*; Brian Jurczyk,* Starfire Industries*; Jessica Krogstad, Mohan Sankaran,* University of Illinois Urbana-Champaign	
4:45pm	**PS2-TuA-11** Transient Assisted Processing (Tap): A Novel Scalable Plasma Processing Approach for Precision Etching and Sustainability in Semiconductor Manufacturing, ***Atefeh Fathzadeh (Graduate Student),*** KU Leuven and Imec, Belgium*; Philippe Bezard,* IMEC, Belgium*; Stefan De Gendt,* KU Leuven and Imec, Belgium	
5:00pm	**PS3-TuA-12** Atomic Layer Etching of Silicon in Continuous Flow, Pulsed Bias Power Plasmas, ***Vincent Donnelly****, Jeremy Mettler, Qinzhen Hao, Mahmoud A. I. Elgarhy,* Dept .of Chem. and Biomolec. Eng, University of Houston*; Heejung Kim,* Semiconductor R&D Center, Samsung Electronics Co., Ltd., Republic of Korea*; Sang Ki Nam,* Mechatronics Research, Samsung Electronics Co., Ltd., Republic of Korea*; Song-Yung Kang,* Semiconductor R&D Center, Samsung Electronics Co., Ltd., Republic of Korea	**Plasma Science and Technology** **Session PS3-TuA** **Plasma Science Late Breaking Oral Session** **Moderators:** **Phillipe Bezard**, IMEC Belgium, **Sara Paolillo**, IMEC Belgium
5:15pm	**PS3-TuA-13** Correlation of Optical Emission Spectroscopy Line Ratios with Deposition Rate and Refractive Index of Silicon Nitride Films in Plasma Enhanced Chemical Vapor Deposition, ***Youngju Ko (Graduate Student)****, Hyeonjin Choi, Jinmyeong Kim,* Sungkyunkwan University (SKKU), Republic of Korea*; Namgun Kim,* Samsung Electronics Co., Republic of Korea*; Heeyeop Chae,* Sungkyunkwan University (SKKU), Republic of Korea	
5:30pm	**PS3-TuA-14** Particle-in-Cell Simulations of Low Pressure Magnetized Plasma, ***Taaresh Taneja,*** Applied Materials Inc.*; Shahid Rauf,* Applied Materials, Inc.*; Prashanth Kothnur,* Applied Materials Inc.	
5:45pm	**PS3-TuA-15** Effect of Nitrogen Addition on Electron Density and Uniformity Enhancement in Oxygen Plasma, ***Yeongjae Jeong (Graduate Student)****, Chin-Wook Chung,* Hanyang University, Korea	

[1] **JVST Highlighted Talk**

Tuesday Afternoon, September 23, 2025

	Room 205 ABCD W	
2:15pm	**INVITED: VT-TuA-1** Advanced UHV Sealing Solutions with HELICOFLEX® TEXEAL®, ***Ryan Widejko,*** Technetics Group - An Enpro Company	**Vacuum Technology** **Session VT-TuA** **Novel Vacuum Methods and Application** **Moderators:** **Freek Molkenboer**, TNO Science and Industry, the Netherlands, **Alan Van Drie**, TAE Technologies
2:30pm		
2:45pm		
3:00pm	**VT-TuA-4** Helium-3 and the Lunar Vacuum: Framing a $17 Trillion Opportunity, ***Chris Salvino,*** Lunar Helium-3 Mining, LLC	
3:15pm	**VT-TuA-5** Flash Session ***Felix Sharipov,*** Universidade Federal do Paraná, Physics Department, Brazil ***Aiman Al-Allaq,*** ODU - Jefferson Lab	
3:30pm	**BREAK**	
3:45pm		
4:00pm	**SE-TuA-8** Spatial Configurations in Magnetron Sputtering: A Comprehensive Review, ***Esteban Broitman,*** *Rickmer Kose,* SENTYS Inc.*; Sven Kelling,* SENTYS, Inc.	**Advanced Surface Engineering** **Session SE-TuA** **Smart Coatings and Responsive Surfaces: Engineering for Tomorrow** **Moderator:** **Filippo Mangolini**, The University of Texas at Austin
4:15pm	**SE-TuA-9** Wide-Bandgap Hybrid Metamaterials: Theory guided Advanced Surface Engineering for UV active Photonic Properties, ***Ufuk Kilic***[12], *Shawn Wimer, Matthew Hilfiker, Raymond Smith,* University of Nebraska-Lincoln*; Christos Argyropoulos,* The Pennsylvania State University*; Eva Schubert, Mathias Schubert,* University of Nebraska-Lincoln	
4:30pm	**SE-TuA-10** On the Energy Efficiency of Sputtering of Elemental Targets by Inert Gas Ions Ne, Ar, Kr, and Xe, ***Ivan Petrov,*** University of Illinois at Urbana Champaign*; Michal Fečík, Stanislav Mráz, Jochen Schneider,* RWTH Aachen University, Germany	
4:45pm		
5:00pm		**2D Materials** **Session 2D-TuA** **2D Materials: Theory and Applications** **Moderator:** **Kai Xiao**, Oak Ridge National Laboratory
5:15pm	**2D-TuA-13** Theoretical Study of van der Waals expitacy of Biayer Silicene on III-Sb substrates, ***Kumar Vishal,*** *Hong Huang, yan zhuang,* wright state university	
5:30pm	**2D-TuA-14** Tuning Bandgap in Nanoporous Graphene through Molecular Design, ***Mamun Sarker,*** *Alexander Sinitskii,* University of Nebraska - Lincoln	
5:45pm	**2D-TuA-15** How Transparent Is Graphene? An Analytical Model for Remote Epitaxy, ***Jason Kawasaki,*** University of Wisconsin Madison	

[1] **ASED Young Investigator Award Finalist**

[2] **ASED Rising Star**

Tuesday Afternoon, September 23, 2025

	Nanoscale Science and Technology **Room 206 A W - Session NS-TuA** **Advanced Nanoscale Materials & Device Technologies** **Moderators: Andrew Mannix**, Standford University, **Taisuke Ohta**, Sandia National Laboratories	**Thin Films** **Room 206 B W - Session TF-TuA** **VSHOP II - Infiltration Synthesis of Hybrid Materials** **Moderators: Jolien Dendooven**, Ghent University, Belgium, **Mark Losego**, Georgia Institute of Technology
2:15pm	**INVITED: NS-TuA-1** Engineering at the Limits of the Nanoscale, ***Farnaz Niroui,*** Massachusetts Institute of Technology	**INVITED: TF-TuA-1** Ruthenium Tetroxide as a Versatile and Selective Precursor for Sequential Infiltration Synthesis of Ru and RuO_2, *Nithin Poonkottil, Matthias Minjauw, Brent Van Neste,* Ghent University, Belgium*; Eduardo Solano,* ALBA Synchrotron, Spain*; Arbresha Muriqi,* Tyndall National Institute, University College Cork, Ireland*; Matthias Filez,* Ghent University, Belgium*; Michael Nolan,* Tyndall National Institute, University College Cork, Ireland*; Christophe Detavernier,* ***Jolien Dendooven,*** Ghent University, Belgium
2:30pm		
2:45pm	**NS-TuA-3** Theoretical Insights into Ethylene Hydroformylation on Transition Metal Heterogeneous Catalysts, ***Shyam Kattel,*** University of Central Florida*; Sourav Ghoshal,* Florida A&M University	**TF-TuA-3** Extrinsic Cation Incorporation in the Magic Size Indium Sulfide Cluster via Vapor Phase Infiltration, ***Kihoon Kim,*** *Taylor Harville, Donghyeon Kang, Nuwanthaka Jayaweera, Karen Mulfort, Jeffrey Elam, Cong Liu, Alex Martinson,* Argonne National Laboratory
3:00pm	**NS-TuA-4** Van Der Waals 3D Assembly of 2D Nanomaterials for Scalable Electronics, ***Joohoon Kang,*** Yonsei University, Korea	**TF-TuA-4** Vapor Phase Infiltration of $VOCl_3$ into P3HT: The Interplay of Doping, Dedoping, and Hybridization, ***Li Zhang (Graduate Student)***[12]***,*** *Shawn Gregory, Mark Losego,* Georgia Institute of Technology
3:15pm	**NS-TuA-5** Impact of External Screening on the Valence and Core-Level Photoelectron Spectra of One-Layer WS_2, *Alex Boehm, Chris Smyth, Andrew Rakyoung Kim, Don Bethke, Tzu-Ming Lu, Jose Fonseca Vega, Jeremy Robinson,* ***Taisuke Ohta,*** Sandia National Laboratories, USA	**TF-TuA-5** Approaches to Elucidate the Chemical Mechanisms of Atomic Layer Infiltration Processes and Final Hybrid Structures, ***Mark Losego,*** Georgia Tech
3:30pm	**BREAK**	**BREAK**
3:45pm		
4:00pm	**NS-TuA-8** III-Nitride Ferroelectrics for Low-Power Computing Devices, ***Deep Jariwala,*** University of Pennsylvania	**INVITED: TF-TuA-8** Functionalization of Polymer Membranes for Water Treatment using Chemical Vapors, ***Jeffrey Elam,*** *Seth Darling, Anil Mane, Rajesh Pathak, Bratin Sengupta, Rahul Shevate, Vepa Rozyyev,* Argonne National Laboratory
4:15pm	**NS-TuA-9** Chemical and Mechanical Modification of 2D Semiconductors for Electronic Devices, ***Andrew Mannix,*** Stanford University	
4:30pm	**NS-TuA-10** Fabrication of Si Nanopillars Using Pmma Resist, ***Kareena Guness (Graduate Student),*** *Zachary Kranefeld, T. Pan Menasuta, Basil. F Vanderbie, Thomas. E Vandervelde,* Tufts University	**TF-TuA-10** Resolving Surface Effects and Bulk Properties for VPI-Modified Polymers, ***Seancarlos Gonzalez (Graduate Student),*** *Yuri Choe, Joelle Scott, Agni Biswal, Cecilia Osburn, David Bergsman,* University of Washington
4:45pm	**NS-TuA-11** Nanoplastic Pillar Arrays for Chemical Sorption Assays, ***Sandra Gutierrez Razo,*** *Andrew Madison, Craig Copeland, Danuta Liberda-Matyja, John Pettibone, Daron Westly, Samuel Stavis,* NIST	**TF-TuA-11** Fundamental Studies of the Sorption, Diffusion, and Reaction Processes of Direct Vapor Phase Infiltration of Diethylzinc into PMMA for Hybrid Material Synthesis, ***Typher Yom (Graduate Student),*** *Mark Losego,* Georgia Institute of Technology, USA
5:00pm	**NS-TuA-12** Optimizing Nanocrystalline WO_3 Thin Films: The Role of Oxygen, Thickness, and Pressure in Highly Selective and Responsive NO Gas Sensing, ***Somdatta Singh,*** Indian Institute of Technology Roorkee, India*; Ravikant Adalati,* University of Mons, Belgium*; Prachi Gurawal, Raman Devi, Radhika Jain, Davinder Kaur, Ramesh Chandra,* Indian Institute of Technology Roorkee, India	**TF-TuA-12** Impact of Vapor Phase Infiltration on the Mechanical and Chemical Properties of Polyethersulfone Membranes , *Yuri Choe,* ***Alyssa Hicks (Undergraduate),*** University of Washington*; David Bergsman,* university of washington
5:15pm	**NS-TuA-13** Effects of Anode Distance on Field Emitter Array Performance in Simulation, ***Youngjin Shin (Graduate Student),*** *Kenneth Chap, Ellie Bultena, Akintunde Akinwande,* Massachusetts Institute of Technology	
5:30pm	**NS-TuA-14** GaN Nanoscale Vacuum-Channel Transistors, ***Huu Nguyen,*** *Keshab Sapkota, George Wang,* Sandia National Laboratories	

[1] **AVS Dorothy M. and Earl S. Hoffman Scholarship Recipient**

[2] **TFD James Harper Award Finalist**

Tuesday Afternoon, September 23, 2025

	Room 207 A W	
2:15pm	**EM1+CPS+MS+PS+SM+TF-TuA-1** Carborane-Based Blocking Layers and Plasma Removal Strategies for Area Selective Deposition in Semiconductor Patterning, ***Raja Sekhar Bale (Graduate Student)***, University of Missouri- Kansas City*; Rupak Thapa,* University of Missouri-Kansas City*; Vamseedhara Vemuri, Nicholas Strandwitz,* Lehigh University*; Anthony Caruso, Michelle Paquette,* University of Missouri-Kansas City	**Electronic Materials and Photonics** **Session EM1+CPS+MS+PS+SM+TF-TuA** **Advances in Materials and Processes for Devices and Interconnects (FEOL and BEOL)** **Moderators:** **Moon Kim**, University of Texas at Dallas, **Philip Lee**, University of Kentucky
2:30pm	**EM1+CPS+MS+PS+SM+TF-TuA-2** Ferroelectricity in Atomic Layer Deposited Wurtzite Zinc Magnesium Oxide Zn1–xMgxO, ***Benjamin Aronson (Graduate Student)***, University of Virginia*; Kyle Kelley,* Oak Ridge National Laboratory*; Ece Gunay,* Carnegie Mellon University*; Ian Mercer,* Penn State University*; Bogdan Dryzhakov,* Oak Ridge National Laboratory*; Susan Trolier-McKinstry, Jon-Paul Maria,* Penn State University*; Elizabeth Dickey,* Carnegie Mellon University*; Jon Ihlefeld,* University of Virginia	
2:45pm	**EM1+CPS+MS+PS+SM+TF-TuA-3** Harnessing Nitrogen-Rich Interfaces in AlN Ferroelectrics, ***Ian Mercer (Graduate Student)***[1]*, Erdem Ozdemir, Chloe Skidmore, Benjamin Debastiani, Kazuki Okamoto,* Penn State University*; Sebastian Calderon, Elizabeth Dickey,* Carnegie Mellon University*; Susan Trolier-McKinstry, Jon-Paul Maria,* Penn State University	
3:00pm	**EM1+CPS+MS+PS+SM+TF-TuA-4** Selective Etching of GaN Over AlGaN and Monitoring via Optical Emission Spectroscopy, ***Michael Thomas (Graduate Student)***, *Patrick Wellenius, Spyridon Pavlidis,* North Carolina State University	
3:15pm		
3:30pm	**BREAK**	
3:45pm		
4:00pm	**EM2+AIML+AP+CPS+MS+SM-TuA-8** Improved Design-of-Experiments and Process Modeling with Generative AI, ***Somilkumar Rathi,*** *Muthiah Annamalai,* Panmo LLC	**Electronic Materials and Photonics** **Session EM2+AIML+AP+CPS+MS+SM-TuA** **Advances in AI and Machine Learning within the Semiconducting Industry** **Moderators:** **Erica Douglas**, Sandia National Laboratories
4:15pm	**EM2+AIML+AP+CPS+MS+SM-TuA-9** Foundation Models in Semiconductor R&D: A Study on Segment Anything, ***Fei Zhou***, Sandisk Corporation	
4:30pm		
4:45pm		

[1] **JVST Highlighted Talk**

Tuesday Afternoon, September 23, 2025

	Room 208 W	
2:15pm	**QS1-TuA-1** A Study of Superconducting Behavior in Ruthenium Thin Films, ***Bernardo Langa Jr. (Graduate Student)***, University of Maryland; *Brooke Henry,* Clemson University; *Ivan Lainez,* University of Maryland; *Richard Haight,* IBM; *Kasra Sardashti,* University of Maryland	**Quantum Science and Technology Mini-Symposium** **Session QS1-TuA** **Interdisciplinary Quantum Applications** **Moderators:** **Yi-Ting Lee**, University of Illinois at Urbana Champaign, **Kasra Sardashti**, University of Maryland College Park
2:30pm	**QS1-TuA-2** Realizing Epitaxial Trilayer Josephson Junctions Grown with Molecular Beam Epitaxy, ***Colin Myers (Graduate Student)***, University of Maryland, College Park; *Kasra Sardashti,* Laboratory for Physical Sciences; *Christopher Richardson,* Laboratory for Physical Sciences, College Park	
2:45pm	**QS1-TuA-3** Enabling Quantum Information Science with DNA-Templated Quantum Materials, ***Xin Luo***[1], *Jeffrey Gorman, Mark Bathe,* Massachusetts Institute of Technology	
3:00pm	**QS1-TuA-4** Enhanced Readout Contrast of V2 Ensembles in 4H-SiC Through Resonant Optical Excitation, ***Infiter Tathfif (Graduate Student)***, University of Maryland College Park; *Charity Burgess, Brenda VanMil,* Army Research Laboratory; *Samuel G. Carter,* Laboratory for Physical Sciences	
3:15pm	**QS1-TuA-5** Enhancement of Superconductivity in Cryogenically Grown Ultra Thin Al Films, ***Teun van Schijndel (Graduate Student)***, *Yu Wu, Wilson Yánez-Parreño, Tawshia Chowdhury, Christopher Palmstrom,* University of California at Santa Barbara	
3:30pm	**BREAK**	
3:45pm		
4:00pm	**INVITED: QS2-TuA-8** Sandia's Approach to Scalable Single Defect Center Creation using Focused Ion Beam Implantation, Invited Paper, ***Edward Bielejac***, Sandia National Laboratories	**Quantum Science and Technology Mini-Symposium** **Session QS2-TuA** **Scalable Fabrication for Quantum Technology** **Moderators:** **Ekta Bhatia**, NY CREATES, **Bernardo Langa, Jr.**, University of Maryland
4:15pm		
4:30pm	**QS2-TuA-10** Scalable Single-Erbium Ion Qubits in Silicon Carbide for Integrated Photonics in the Telecom Band, ***Spyros Galis***, *Alexander Kaloyeros,* University at Albany-SUNY	
4:45pm	**QS2-TuA-11** Scalable, Precise, and Reliable Positioning of Colour Centres for Quantum Computing and Simulation, ***Mark Mills***, *Gianfranco Aresta, Kristian Stockbridge, Kate McHardy, Paul Blenkinsopp,* Ionoptika Ltd., UK	
5:00pm	**QS2-TuA-12** Integration of Atomic Precision Solid State Quantum Hardware with energy efficient circuit, architecture and algorithm co-design for Energy Efficiency Scaling, ***Tina Kaarsberg***, Department of Energy; *Sadasivan Shankar,* SLAC National Accelerator Laboratory; *Scott Lockledge,* Tiptek	
5:15pm	**QS2-TuA-13** Measurement of Dielectric Loss in Piezoelectric Materials for Hybrid Quantum Systems, ***Ivan Lainez (Graduate Student)***, University of Maryland College Park; *Richard Mattish,* Clemson University; *Bernardo Langa, Jr.,* University of Maryland College Park; *Maggie Marte, Deepak Sapkota,* Clemson University; *Christopher Rouleau, Jong Keum,* Oak Ridge National Laboratory; *Ashish Alexander,* Laboratory for Physical Sciences; *Kasra Sardashti,* University of Maryland College Park	

[1] **JVST Highlighted Talk**

Tuesday Afternoon, September 23, 2025

	Applied Surface Science Room 209 B W - Session AS-TuA Theory and Data **Moderators: Steve Consiglio**, Tokyo Electron, **Jeffrey Terry**, Illinois Institute of Technology	Surface Science Room 209 CDE W - Session SS-TuA Heterogeneous Catalysis I **Moderators:** **Zbynek Novotny**, Pacific Northwest National Laboratory, **Dario Stacchiola**, Brookhaven National Laboratory
2:15pm		**INVITED: SS-TuA-1** Interstellar Catalysis - a Route to Molecular Complexity in Space, ***Liv Hornekaer,*** Aarhus University, Denmark
2:30pm		
2:45pm	**INVITED: AS-TuA-3** Artificial Intelligence Algorithms for Materials Characterization Analysis, ***Min Long,*** Boise State University	**SS-TuA-3** Kinetics and Dynamics of CO Oxidation on Rhodium Surfaces, ***Dan Killelea,*** Loyola University Chicago
3:00pm		**SS-TuA-4** The Effects of Alkane Structure, Cluster Size, and Cluster Composition on Activity of Pt_n and Pt_nGe_m Catalysts for Cracking and Dehydrogenation, ***Autumn Fuchs (Graduate Student)***, *Scott Anderson,* University of Utah; *Avital Isakov, Anastassia Alexandrova,* University of California at Berkeley
3:15pm	**AS-TuA-5** Fourier Denoising of XPS Data: An Algorithm for Automating the Identification of the Cutoff of the Gauss-Hermite Filter in Reciprocal Space and Feature Identification in XPS Spectra, ***Alvaro J. Lizarbe (Graduate Student)***, *Matthew R. Linford, Kristopher S. Wright, Garrett Lewis,* Brigham Young University; *David E. Aspnes,* North Carolina State University; *David J. Morgan,* Cardiff University, UK; *Mark Isaacs,* University College London; *Jeff Terry,* Illinois Institute of Technology; *Stanislav Průša,* Brno University of Technology	**SS-TuA-5** Oxygen Passivation of Au Capped Niobium, ***Van Do (Graduate Student)***, *Helena Lew-Kiedrowska, Sarah Willson,* University of Chicago; *Chi Wang,* National Cheng Kung University (NCKU), Taiwan; *Steven Sibener,* University of Chicago
3:30pm	**BREAK**	**BREAK**
3:45pm		
4:00pm	**AS-TuA-8** Fourier Denoising of XPS Data: Application of the Gauss-Hermite Filter Function to Carbon Auger D-Parameter, HAXPES, and LEIS data, and an Improved Algorithm for Reducing End-Point and Slope Discontinuity Artifacts, ***Matthew R. Linford***, *Alvaro J. Lizarbe, Kristopher S. Wright, Garrett Lewis,* Brigham Young University; *David E. Aspnes,* North Carolina State University; *David J. Morgan,* Cardiff University, UK; *Mark Isaacs,* University College London, UK; *Jeff Terry,* Illinois Institute of Technology; *Stanislav Průša,* Brno University of Technology, Czechia	**INVITED: SS-TuA-8** Achieving Effective Catalysis by Transient Heating Using Mechanocatalysis and Pulsed Joule Heating, ***David Sholl***, *Zili Wu,* ORNL; *Carsten Sievers,* Georgia Institute of Technology; *Liangbing Hu,* Yale University
4:15pm	**AS-TuA-9** Identification of Materials from TOF SIMS Spectra via Machine Learning, *Lev Gelb*[1], ***Amy Walker***, University of Texas at Dallas	
4:30pm	**INVITED: AS-TuA-10** Benefits of a Modern File Format for ToF-SIMS Imaging, ***Alex Henderson***, University of Manchester, UK	**SS-TuA-10** Unraveling the Desorption Dynamics of Cyclic Hydrocarbons on Fe_3O_4(001): Insights from Temperature-Programmed Desorption, ***Moritz Eder***[1], TU Wien, Austria; *Federico Loi,* J. Heyrovsky Institute of Physical Chemistry, Czechia; *Nail Barama, Faith Lewis, Margareta Wagner,* TU Wien, Austria; *Štefan Vajda,* J. Heyrovsky Institute of Physical Chemistry, Czechia; *Jiří Pavelec, Gareth Parkinson,* TU Wien, Austria
4:45pm		**SS-TuA-11** Investigating the Stability and Reactivity of Subsurface Oxygen in Ag(111) Using Lattice-Gas Models, DFT, and Monte Carlo Simulations, *Carson Mize, Lonnie Crosby, Bright Daniel,* ***Sharani Roy***, University of Tennessee Knoxville
5:00pm	**AS-TuA-12** Template Matching Approach for Automated Determination of Crystal Phase and Orientation of Grains in 4D-STEM Precession Electron Diffraction Data for Hafnium Zirconium Oxide Ferroelectric Thin Films, ***Alain Diebold***, CNSE, University at Albany, SUNY; *Colin Ophus,* Stanford University; *Amir Kordijazi,* University of Southern Maine; *Steven Consiglio,* TEL Technology Center, America, LLC; *Sarah Lombardo, Dina Triyoso, Kandabara Tapily,* TEL Technology Center, America, LLC, USA; *Ana Mian,* TESCAN GROUP, Inc.; *Nithin BVI Shankar,* TESCAN GROUP, a.s., Czechia; *Tomáš Morávek,* TESCAN GROUP, a.s.,; *Narendraraj Chandran,* TESCAN GROUP, a.s, Czechia; *Robert Stroud,* TESCAN GROUP, Inc.; *Gert Leusink,* TEL Technology Center, America, LLC	**SS-TuA-12** Size and Proximity Dependent Electronic Metal-Support Interactions on Cu/TiO_2(110), *Lindsey Penland, H. H. Hirushan, N. Dissanayake,* ***Rachael Farber***, University of Kansas
5:15pm		**SS-TuA-13** Steering Pt Cluster Dimensionality via Morphology and Surface Oxidation State of CeO2(111) Thin Films, ***Johanna Reich***, *Mina Soltanmohammadi,* Technical University of Munich, Germany; *Vedran Vonk,* Deutsches Elektronen-Synchrotron (DESY), Germany; *Sebastian Kaiser, Ueli Heiz,* Technical University of Munich, Germany; *Andreas Stierle,* Deutsches Elektronen-Synchrotron (DESY), University of Hamburg, Germany; *Friedrich Esch, Barbara A. J. Lechner,* Technical University of Munich, Germany

[1] **JVST Highlighted Talk**

Tuesday Afternoon, September 23, 2025

	Room 209 F W	
2:15pm	**INVITED: EL1-TuA-1** Optical Properties of Chromogenic Thiazolothiazole-embedded Polymers, *Nuren Shuchi, Dustin Louisos, Glenn D. Boreman, Tyler Adams, Michael G. Walter,* University of North Carolina at Charlotte*; **Tino Hofmann**,* New Jersey Institute of Technology	**Spectroscopic Ellipsometry** **Session EL1-TuA** **Spectroscopic Ellipsometry Material Applications** **Moderators:** **David Aspnes**, North Carolina State University, **Ron Synowicki**, J. A. Woollam Co., Inc.
2:30pm		
2:45pm	**EL1-TuA-3** Dielectric Function of Atomic Layer Deposition Grown VO_2 Determined by Spectroscopic Ellipsometry, ***Dustin Louisos (Graduate Student)**, Nuren Shuchi, Glenn Boreman,* University of North Carolina at Charlotte*; Tino Hofmann,* New Jersey Institute of Technology	
3:00pm	**EL1-TuA-4** Temporal Properties of Photochromic Thiazolothiazole-Embedded Polymer Films, ***Nuren Shuchi (Graduate Student)**, Tyler Adams, Naz Tumpa, Dustin Louisos, Glenn Boreman, Michael Walter,* University of North Carolina at Charlotte*; Tino Hofmann,* New Jersey Institute of Technology	
3:15pm	**EL1-TuA-5** Determination of optical properties of ultrathin silane films coated on Silicon substrate by means of Immersion Ellipsometry, ***Samira Jafari (Graduate Student)**,* Brigham Young University*; Blaine Johs,* Film Sense LLC*; Matthew Linford,* Brigham Young University	
3:30pm	**BREAK**	
3:45pm		
4:00pm	**INVITED: EL2-TuA-8** In Situ Spectroscopic Ellipsometry Studies of Selective Thermal Dry Etching, ***Marcel Junige**, Steven M. George,* University of Colorado Boulder	**Spectroscopic Ellipsometry** **Session EL2-TuA** **Spectroscopic Ellipsometry Novel Methodologies** **Moderators:** **Ufuk Kilic**, University of Nebraska - Lincoln, **Mathias Schubert**, University of Nebraska - Lincoln
4:15pm		
4:30pm	**EL2-TuA-10** Artificial Intelligence for Ellipsometric Analysis of Liquid Mixtures Using Multi-Bounce ATR-FTIR, ***Jeremy VanDerslice**,* J.A. Woollam Co.*; Alyssa Mock, Madison Coleman, Mar Diehl, Madison Meaney, Tyler Adams,* Weber State University	
4:45pm	**EL2-TuA-11** Stimulated Brillouin Scattering for Semiconductor Metrology, ***Matthew Sartin**, Deric Session, Robin Mair, Michael Kotelyanskii, Manjusha Mehendale, George Antonelli,* Onto Innovation	
5:00pm	**EL2-TuA-12** Laser Ellipsometry: A Half Century Old New Technique, ***Alexander Ruder**, Deric Session, Marieke Ordway, Fei Shen, Michael Kotelyanskii, Manjusha Mehendale, G. Andrew Antonelli,* Onto Innovation	
5:15pm		

Tuesday Afternoon, September 23, 2025

	Room Hall A, Booth #222	
2:15pm	**BI-TuA-1** Quantifying Bacterial Adsorption at Biointerfaces Using Impedance Spectroscopy: A Key Step in Biofilm Formation, ***Yunxing Li (Graduate Student)***, *Dipankar Koley,* Oregon State University	**Biomaterial Interfaces** **Session BI-TuA** **The Future of Biointerface Science** **Moderator:** **Tobias Weidner**, Aarhus University, Denmark
2:30pm	**BI-TuA-2** Scalable and Biocompatible Polymer Dome Arrays for Oil-Free High-Resolution Live-Cell Imaging, ***Kwang-Won Park***, *Sophie Liu, Wenjing Tang, Rong Yang,* Cornell University	
2:45pm	**BI-TuA-3** Development and Characterization of Decellularized Seaweed Scaffolds for Tissue Engineering., *Gobinath Chithiravelu,* ***Marion J. Jones,*** *Ivana Hernandez de Estrada, Yadvendra Singh, Harish Subbaraman, Binata Joddar,* Oregon State University	
3:00pm		
3:15pm		
3:30pm	**BREAK**	
3:45pm		

Wednesday Morning, September 24, 2025

	Plasma Science and Technology **Room 201 ABCD W - Session PS-WeM** **Plasma Catalysis and Surface Interactions** **Moderator:** **Sumit Agarwal**, Colorado School of Mines, USA	**Chemical Analysis and Imaging at Interfaces** **Room 205 ABCD W - Session CA+AS+SS-WeM** **Chemical Analysis and Imaging at Interfaces Oral Session** **Moderators: Gabriel Parker,** Oak Ridge National Laboratory **Xiao-Ying Yu**, Oak Ridge National Laboratory, USA
8:00am	**PS-WeM-1** The Impact of Plasma Enhancement Gasses on Hydrogen Superpermeation Through Palladium Alloy Metal Foil Pumps, ***Caroline Hufnagel (Undergraduate)***, *Vitor Camacho,* Colorado School of Mines*; Thomas Fuerst,* Idaho National Laboratory*; Doug Way, Colin Wolden,* Colorado School of Mines	**INVITED: CA+AS+SS-WeM-1** Heterogeneous Chemistry at Liquid-Vapor Interfaces Investigated by X-Ray Photoelectron Spectroscopy, ***Hendrik Bluhm,*** Fritz Haber Institute of the Max Planck Society, Germany
8:15am	**PS-WeM-2** The Impact of Contaminants on Superpermeation Through Palladium Alloy Metal Foil Pumps, *Chao Li,* Marathon Fusion*; Caroline Hufnagel,* Colorado School of Mines*; Thomas Fuerst,* Idaho National Laboratory*; Vitor Camacho, Doug Way,* ***Colin Wolden****,* Colorado School of Mines	
8:30am		**INVITED: CA+AS+SS-WeM-3** Probing Chemical and Catalytic Interfaces Using Operando Soft X-Ray Spectroscopy, ***Jinghua Guo****,* Lawrence Berkeley National Laboratory
8:45am		
9:00am	**INVITED: PS-WeM-5** in Situ/Operando Diagnostics of Liquids and Catalysts in Contact with Plasmas, *Kasidapa Polprasarn, Dihya Sadi,* Laboratoire de Physique des Plasmas (CNRS, Ecole Polytechnique, Institut Polytechnique de Paris, Sorbonne Université), France*; Darwin Kurniawan,* Department of Chemical Engineering, National Taiwan University of Science and Technology, Taiwan*; Thomas Orrière,* Institut PPRIME (CNRS, Université de Poitiers, ISAE-ENSMA), France*; Pankaj Pareek,* Faculty of Mathematics, Physics, and Informatics, Comenius University, Slovakia*; Francesca Caielli, Karthik Thyagajaran,* Institut PPRIME (CNRS, Université de Poitiers, ISAE-ENSMA), France*; Mario Janda,* Faculty of Mathematics, Physics, and Informatics, Comenius University, Slovakia*; Wei-Hung Chiang,* Department of Chemical Engineering, National Taiwan University of Science and Technology, Taiwan*; Olivier Guaitella,* ***David Pai****,* Laboratoire de Physique des Plasmas (CNRS, Ecole Polytechnique, Institut Polytechnique de Paris, Sorbonne Université), France	**CA+AS+SS-WeM-5** Capturing Electrical Double Layer in Action with Xps on a Graphene Coplanar Capacitor with an Ionic Liquid, ***Sefik Suzer,*** Bilkent University, Chemistry Department, Ankara, Turkey
9:15am		**CA+AS+SS-WeM-6** Studying Tungsten and Alloys as Candidate Plasma Facing Material Using ToF-SIMS, ***Xiao-Ying Yu****, Gabriel Parker, Tobias Misicko, Yan-Ru Lin,* Oak Ridge National Laboratory*; Tanguy Terlier,* Rice University*; Yutai Katoh,* Oak Ridge National Laboratory
9:30am	**PS-WeM-7** Catalytic Deconstruction Product Tunability Through Atmospheric Air Plasma Pre-Treatment, ***Aunic Goodin (Graduate Student)***[1]*,* North Caroline State University*; Tridip Das,* California Institute of Technology*; Shashwata Chakraborty, Sujoy Bepari, Debasish Kuila,* North Carolina Agricultural and Technical State University*; William Goddard,* California Institute of Technology*; Steven Shannon,* North Carolina State University	
9:45am		
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: PS-WeM-13** Gas-Phase Plasma Synthesis as a Method for Producing Nanomaterials with Special Properties, ***Hartmut Wiggers****,* University of Duisburg-Essen, Germany	**INVITED: CA+AS+SS-WeM-13** ToF-SIMS Acquisition Multiplexing - Concept, Applications, and Data Analysis, ***Henrik Arlinghaus****,* 1) ION-TOF GmbH, Germany; 2) Institut für Hygiene, WWU, Germany*; Alexander Pirkl, Derk Rading, Julia Zakel, Ewald Niehuis,* ION-TOF GmbH, Germany
11:15am		
11:30am	**INVITED: PS-WeM-15** Interaction of Etching Plasmas with Polyurea Films deposited by Molecular Layer Deposition for Surface and Sidewall Passivation, ***Wallis Scholl (Graduate Student)****,* Colorado School of Mines*; Thorsten Lill, Mingmei Wang, Wenyu Zhang, Harmeet Singh,* Lam Research Corporation*; Sumit Agarwal,* Colorado School of Mines	**INVITED: CA+AS+SS-WeM-15** Diamond Surface Analysis for Electronics and Quantum Applications, ***Alastair Stacey,*** Princeton Plasma Physics Laboratory
11:45am		
12:00pm	**PS-WeM-17** Characterization and Operation of a 2-D Plasma Reactor for Methane Pyrolysis, *Huseyin Ozturk, Andac Yagiz Kaya,* ***Necip Berker Uner****,* Middle East Technical University, Turkey	**CA+AS+SS-WeM-17** ToF-SIMS Spectral Analysis Using Python, ***Tobias Misicko (Graduate Student)***[1]*,* Louisiana Tech University and Oak Ridge National Laboratory*; Nan Jiang, Xinghang Zhang, Yexiang Xue,* Purdue University*; Xiao-Ying Yu,* Oak Ridge National Laboratory

Wednesday Morning, September 24, 2025

	Room 206 A W	
8:00am	**AP+PS+TF-WeM-1** High-Temperature Thermal ALD of SiO_2 Using Chlorosilane and Aminosilane Precursors: A Comparative Study, ***Okhyeon Kim (Graduate Student)***, *Tanzia Chowdhury, Changgyu Kim, Hye-Lee Kim,* Sejong University, Republic of Korea*; Jae-Seok An, Jung Woo Park,* Hansol Chemical Co., Ltd., Republic of Korea*; Won-Jun Lee,* Sejong University, Republic of Korea	**Atomic Scale Processing Mini-Symposium** **Session AP+PS+TF-WeM** **Thermal and Plasma-Enhanced Atomic Layer Deposition** **Moderators:** **Austin Minnich**, California Institute of Technology
8:15am	**AP+PS+TF-WeM-2** Catalyzed Molecular Layer Deposition of Methylene-Bridged Silicon Oxycarbide and the Effect of Annealing on Molecular Structure and Electrical Properties, ***Man Hou Vong (Graduate Student)***, *Seoyeon Kim, Michael Dickey, Gregory Parsons,* North Carolina State University	
8:30am	**AP+PS+TF-WeM-3** The Effect of Precursor Choice and Process Temperature on the Properties of ALD Films, ***Theodosia Gougousi***, *Nimarta Chowdhary,* UMBC	
8:45am	**AP+PS+TF-WeM-4** Microwave Enhanced Atomic Layer Deposition (MW-ALD) of HfO_2, ***Jessica Haglund (Graduate Student)***, *John Conley Jr.,* Oregon State University	
9:00am	**AP+PS+TF-WeM-5** In Situ Studies of Ald $Hf0.5Zr0.5O_2$ by Spectroscopic Ellipsometry and Reflection Absorption Infrared Spectroscopy, *Stijn van der Heijden, Alex Neefs,* ***Erwin Kessels***, *Bart Macco,* Eindhoven University of Technology, Netherlands	
9:15am	**AP+PS+TF-WeM-6** Thermal Stability of HfO2 by Incorporating Al2O3 in a MIM Capacitor by 200 mm Batch-ALD, ***Partha Mukhopadhyay***, Tokyo Electron America*; Ivan Fletcher, Zuriel Caribe, Anton deVilliers, Jim Fulford,* Tokyo Electron America, USA	
9:30am	**AP+PS+TF-WeM-7** Highly Crystalline ZrO_2 Films under 2 nm by Atomic Layer Modulation, ***Wonjoong Kim (Graduate Student)***, Incheon National University, Republic of Korea*; Ngoc Le Trinh,* Incheon National University, Viet Nam*; Bonwook Gu,* incheon National University, Republic of Korea*; Byungha Kwak,* Ajou University, Republic of Korea*; Hyunmi Kim, Hyeongkeun Kim,* Korea Electronics Technology Institute, Republic of Korea*; Youngho Kang,* incheon National University, Republic of Korea*; Il kwon Oh,* ajou University, Republic of Korea*; Han-Bo-Ram Lee,* Incheon National University, Republic of Korea	
9:45am	**AP+PS+TF-WeM-8** Influence of Molecular Structure on Ruthenium Deposition: An *in Situ* Study Using Simultaneous Spectroscopic Ellipsometry and Quadrupole Mass Spectrometry, ***Terrick McNealy-James (Graduate Student)***, University of Central Florida*; Xin Kang,* University of Florida, Gainesville*; Luis Tomar,* University of Central Florida*; Johnathon Johnson,* University of Florida, Gainesville*; Novia Berriel, Taylor Currie, Titel Jurca,* University of Central Florida*; Lisa McElwee-White,* University of Florida, Gainesville*; Parag Banerjee,* University of Central Florida	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am	**AP+PS+TF-WeM-13** Study on the Thermal Decomposition Behavior of Mo(Co)6 as a Precursor for Mo-ALD, *Soken Obara, Souga Nagai, Jun Yamaguchi, Noboru Sato, Naoki Tamaoki, Atsuhiro Tsukune,* ***Yukihiro Shimogaki***, The University of Tokyo, Japan	
11:15am	**AP+PS+TF-WeM-14** Nucleation Enhancement and Growth Modification in Co-ALD via Pd activation, ***Yubin Deng***, The University of Tokyo, Japan, China*; Souga Nagai, Jun Yamaguchi, Yuhei Otaka, Noboru Sato, Naoki Tamaoki, Atsuhiro Tsukune, Yukihiro Shimogaki,* The University of Tokyo, Japan	
11:30am	**AP+PS+TF-WeM-15** Process-Structure-Properties of Atomic Layer Deposited Niobium Nitride and Evolution of Strain with Plasma Chemistry, *Neeraj Nepal, Joseph Prestigiacomo, Maria G Sales, Peter M Litwin, Vikrant J Gokhale,* ***Virginia D Wheeler***, Naval Research Laboratory	
11:45am	**AP+PS+TF-WeM-16** Thin Film Property Modification via Electric Field-Modulated Atomic Layer Deposition, ***Jessica Jones***[1], *Shi Li, Francisco Lagunas Vargas, Zachary Hood,* Argonne National Laboratory	
12:00pm	**AP+PS+TF-WeM-17** Thin Conductive Cu Films by In-Situ Plasma Post-Reduction of Atomic Layer Deposited CuO, *Maria Sales, Neeraj Nepal, Peter Litwin, David Boris, Scott Walton,* ***Virginia Wheeler***, Naval Research Laboratory	

[1] **JVST Highlighted Talk**

Wednesday Morning, September 24, 2025

	Room 206 B W	
8:00am	**INVITED: TF1-WeM-1** Enzyme Microenvironment Engineering via Initiated Chemical Vapor Deposition, ***Yifan Cheng***, Virginia Tech	**Thin Films** **Session TF1-WeM** **VSHOP III - Initiated Chemical Vapor Deposition** **Moderators:** **Kwang-Won Park**, Cornell University, **Stefan Schröder**, Kiel University, Germany
8:15am		
8:30am	**TF1-WeM-3** Engineering Protonation Depth and Charge Density in Polymers for Ph-Responsive Immobilized Lactase Catalysis, ***Huida Duan (Graduate Student)***, *Junxing Chen, Wei Sun, Yifan Cheng,* Virginia Tech	
8:45am	**TF1-WeM-4** Recent Advances in the Understanding of Spontaneous Orientation Polarization in Polymer Thin Films Deposited by Initiated Chemical Vapor Deposition (iCVD), ***Stefan Schröder***, *Torge Hartig, Thomas Strunskus, Tayebeh Ameri, Franz Faupel,* Kiel University, Germany	
9:00am	**INVITED: TF1-WeM-5** Surface Roughness Control in Vapor-Deposited Nanocoatings for Bio-Adhesion Mitigation, ***Jessie Yu Mao***, *Chengqian Huang, Mengfan Zhu,* Oklahoma State University	
9:15am		
9:30am	**TF1-WeM-7** Precision Synthesis of Polymeric Materials Using initiated Chemical Vapor Deposition (iCVD) for Cyber Manufacturing, ***Rong Yang***, Cornell University	
9:45am	**TF1-WeM-8** PFAS-free initiators for iCVD, ***Torge Hartig (Graduate Student)***, *Hannes Nehls, Tim Pogoda, Joschka Paulsen, Julia Piehl, Thomas Strunskus, Franz Faupel,* Kiel University, Germany*; Tayebeh Ameri,* Kiel University, Germany, Iran (Islamic Republic of)*; Stefan Schröder,* Kiel University, Germany	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am	**TF2-WeM-13** Ozone-Initiated Oxidative Chemical Vapor Deposition of PEDOT Coatings on 2D and 3D Substrates, ***Blake Nuwayhid***[1], *Travis Novak, Jeffrey Long, Debra Rolison,* U.S. Naval Research Laboratory	**Thin Films** **Session TF2-WeM** **VSHOP IV - Oxidative Chemical Vapor Deposition & Molecular Layer Deposition** **Moderator:** **David S. Bergsman**, University of Washington
11:15am	**TF2-WeM-14** Oxidative Chemical Vapor Deposition of Nanometer-Scale Polyaniline on Si/Cobalt Phthalocyanine (CoPc) Photocathodes for Enhanced Stability and CO/H_2 Selectivity during Photoelectrochemical CO_2 Reduction, ***Hyuenwoo Yang***, *Yuchen Liu, Seoyeon Kim, Hannah Margavio,* North Carolina State University*; Carrie Donley,* University of North Carolina at Chapel Hill*; Hwan Oh,* Brookhaven National Laboratory*; Renato Sampaio,* University of North Carolina at Chapel Hill*; Gregory Parsons,* North Carolina State University	
11:30am	**TF2-WeM-15** Temperature Effects in Oxidative Molecular Layer Deposition (oMLD) of Polypyrrole, ***Mahya Mehregan (Graduate Student)***, *Shima Mehregan, Andrew Reinhard, Matthew Maschmann,* University of Missouri-Columbia*; Matthias Young,* University of Missouri, Columbia	
11:45am	**TF2-WeM-16** Oxidative Molecular Layer Deposition of Polythiourea for Nitrate Sensing, ***Shima Mehregan (Graduate Student)***[2], *Mahya Mehregan,* university of missouri*; Erick Gutierrez Monje, Matthias Young,* University of Missouri	
12:00pm	**TF2-WeM-17** Polyurea Molecular Layer Deposition Using Low Melting Point Precursors for Use in Biosensor Design, ***Jay Werner (Graduate Student)***, *Seancarlos Gonzalez, David S. Bergsman,* University of Washington	

[1] **JVST Highlighted Talk**

[2] **TFD James Harper Award Finalist**

Wednesday Morning, September 24, 2025

	Room 207 A W	
8:00am 8:15am	**INVITED: EM1+AP+CA+CPS+MS+TF-WeM-1** Progress in Wide and Ultra-Wide Bandgap Semiconductors – Energy Implications, ***John Muth,*** North Carolina State University	**Electronic Materials and Photonics** **Session EM1+AP+CA+CPS+MS+TF-WeM** **Advances in Wide Bandgap Materials and Devices** **Moderator:** **Erin Cleveland**, Laboratory of Physical Sciences
8:30am	**EM1+AP+CA+CPS+MS+TF-WeM-3** Limitations and Effects of Heavy Metal Doping in GaN, *J. Pierce Fix,* Montana State University*; Kevin Vallejo,* Idaho National Laboratory*; Nicholas Borys,* Montana State University*;* ***Brelon May,*** Idaho National Laboratory	
8:45am	**EM1+AP+CA+CPS+MS+TF-WeM-4** Using Raman Spectroscopy to Characterize Stress and Strain in SiC, ***Michelle Sestak,*** HORIBA	
9:00am	**EM1+AP+CA+CPS+MS+TF-WeM-5** Nanoscale GaN Vacuum Electron Devices, ***George Wang,*** *Keshab Sapkota, Huu Nguyen, Gyorgy Vizkelethy,* Sandia National Laboratories	
9:15am	**EM1+AP+CA+CPS+MS+TF-WeM-6** Combining CVD of Graphene and SiC for Efficient Layer Transfer, ***Daniel Pennachio,*** *Jenifer Hajzus, Rachael Myers-Ward,* US Naval Research Laboratory	
9:30am	**EM1+AP+CA+CPS+MS+TF-WeM-7** Multiscale Modeling of Self-heating Effects in AlGaN/GaN High Electron Mobility Transistors (HEMT), ***Jerry Comanescu,*** National Institute of Standards and Technology*; Albert Davydov,* NIST-Gaithersburg*; Michael Shur,* Theiss Research, Inc.*; Tyler Gervasio, Behrang Hamadani, Michael Lloyd,* NIST-Gaithersburg	
9:45am	**EM1+AP+CA+CPS+MS+TF-WeM-8** Atomic Layer Deposition of High-k Oxide Layers on Aluminum Gallium Nitride: Insight from Time-Resolved Synchrotron Studies, *Nishant Patel, Shreemoyee Chakraborty,* Lund University, Sweden*; Byeongchan So,* lund University, Sweden*; Minho Kim, Alexis Papamichail,* Linkoping University, Sweden*; Rosemary Jones,* Max IV Laboratory, Sweden*; Erik Lind, Vanya Darakchieva,* ***Rainer Timm,*** Lund University, Sweden	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am 11:15am	**INVITED: EM2+CA+CPS+MS+SE+TF-WeM-13** Ga_2O_3 Polymorphs: Epitaxial Film Growth, Characterization and Contacts, ***Lisa Porter,*** *Jingyu Tang, Kunyao Jiang, Robert Davis, Posen Tseng, Rachel Kurchin,* Carnegie Mellon University*; Luke Lyle,* Penn State Applied Research Labs*; Carlo Schettini Mejia,* Carnegie Mellon University	**Electronic Materials and Photonics** **Session EM2+CA+CPS+MS+SE+TF-WeM** **Processing Ultra-Wide Band Gap Ga_2O_3** **Moderators:** **Daniel Pennachio**, Naval Research Laboratory
11:30am	**EM2+CA+CPS+MS+SE+TF-WeM-15** Compensating Interfacial Parasitic Si Channels in β-Ga2O3 Thin Films Via Fe δ-doping, ***Prescott Evans,*** *Brenton Noesges, Jian Li, Mark Gordon, Daram Ramdin, Shin Mou, Adam Neal, Thaddeus Asel,* Air Force Research Laboratory, USA	
11:45am	**EM2+CA+CPS+MS+SE+TF-WeM-16** Investigating Metal Gate-Driven Interfacial Reactions in ALD-Grown Al_2O_3 on β-Ga_2O_3, ***Joy Roy (Graduate Student),*** *Adam A. Gruszecki,* The University of Texas at Dallas*; Khushabu S. Agarwal, Paolo La Torraca, Karim Cherkaoui, Paul K. Hurley,* Tyndall National Institute, University College Cork, Ireland*; Chadwin D. Young, Robert M. Wallace,* University of Texas at Dallas	

Wednesday Morning, September 24, 2025

	Applied Surface Science **Room 209 B W - Session AS-WeM** **Quantitative Surface Analysis II** **Moderators: Hong Piao**, FUJIFILM Electronic Materials USA., Inc., **Samantha Rosenberg**, Kairos Power	**Surface Science** **Room 209 CDE W - Session SS-WeM** **On Surface Reactions** **Moderators: Nathan Guisinger**, Argonne National Laboratory, USA, **Yuan Zhang**, Old Dominion University
8:00am	**AS-WeM-1** Using X-ray Photoelectron Spectroscopy to Determine Iron Oxidation State in Metamorphic Fe-Ti-oxides, Adirondack Mts, New York, ***Jennifer Mann***, *David Valley, Kateryna Artyushkova,* Physical Electronics; *William Nachlas, John Valley,* Department of Geoscience, University of Wisconsin	**INVITED: SS-WeM-1** Surface and Interface Induced Properties of Low-dimensional Materials: First Principle Simulations, ***Shixuan Du***, Institute of Physics, Chinese Academy of Sciences, China
8:15am	**AS-WeM-2** Detection of Low Levels of Oxygen in Reactive Materials by X-Ray Photoelectron Spectroscopy (XPS), ***Jeff Shallenberger***, *Robert Hengstebeck,* Pennsylvania State University; *Gilbert Rayner Jr.,* Kurt J. Lesker	
8:30am	**AS-WeM-3** Low Energy Ion Scattering Analysis of GC/IrO_X /SiO_2 Catalyst Layer Structures, *Philipp Brüner,* ***Thomas Grehl***, IONTOF GmbH, Germany; *Rens Kamphorst, Katherine Encalada-Flores, Ruud Kortlever, Ruud van Ommen,* Delft University of Technology, Netherlands	**SS-WeM-3** In situ XPS Study of Pt-Grafted g-C3N4 as a Water-Splitting Photocatalyst, *Yu-Bin Huang,* National Synchrotron Radiation Research Center, Taiwan; *Ying-Huang Lai,* Department of Chemistry, Tunghai University, Taiwan; ***Bo-Hong Liu***[1], National Synchrotron Radiation Research Center, Taiwan
8:45am	**AS-WeM-4** Characterizing Oxide Phase Formation in Niobium-Based Superconducting Devices for NASA Astrophysics Missions, ***Femi Akinrinola (Graduate Student)***[1], *Vikum Dewasurendra, Seth Woodwyk, Aidan Sheppard, Matthew Johnson, Mikel Holcomb,* West Virginia University, USA	**SS-WeM-4** Hydrogen-Induced Surface Chemistry of Copper Boride on Cu(111), ***Jennifer Sanchez (Graduate Student)***, *Kevin Sutherland,* University of Texas at San Antonio; *Abdullah Al-Mahboob,* Brookhaven National Laboratory; *Fang Xu,* University of Texas at San Antonio; *Dario Stacchiola,* Brookhaven National Laboratory
9:00am	**INVITED: AS-WeM-5** Challenges in Next Generation Semiconductor Devices: Insights by Tof-Sims, ***Rita Tilmann***, *Alexis Franquet, Paul van der Heide,* IMEC Belgium	**SS-WeM-5** DFT Study of Transition-Metal Doping in $Ni(OH)_2$/NiOOH Catalysts for Enhanced Urea Oxidation, *Qiu Jin, Matteo Garcia-Ortiz,* School of Chemical, Biological, and Environmental Engineering, Oregon State University; ***Líney Árnadóttir***[1], School of Chemical, Biological, and Environmental Engineering, Oregon State University. Physical and Computational Sciences Directorate, Institute for Integrated Catalysis, Pacific Northwest National Laboratory
9:15am		**SS-WeM-6** Visualizing Self-Metalation Mediated Cyclodehydrogenation of a Nonplanar Tetrabenzoporphyrin Molecule by Tip-Enhanced Raman Spectroscopy, ***Soumyajit Rajak (Graduate Student)***[2], *Nan Jiang,* University of Illinois, Chicago
9:30am	**AS-WeM-7** XPS Investigation of Argon Monoatomic and Gas Cluster Ion Beam Etching of 4H SiC, ***Ryan Raad (Graduate Student)***, Christian Doppler Laboratory for Sustainable Silicon Carbide Technology, Institute of Sensor and Actuator Systems, TU Wien, Austria; *Markus Sauer,* Analytical Instrumentation Center, TU Wien, Austria; *Georg Pfusterschmied,* Christian Doppler Laboratory for Sustainable Silicon Carbide Technology, Institute of Sensor and Actuator Systems, TU Wien, Austria; *Ulrich Schmid,* Institute of Sensor and Actuator Systems, TU Wien, Austria	**INVITED: SS-WeM-7** Band Engineering Low Energy States in 1D and 2D Carbon Nanomaterials, ***Felix Fischer***, UC Berkeley
9:45am		
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: AS-WeM-13** In situ and quasi-in situ characterization techniques for atomic-scale process development in device fabrication: focus on Area Selective Deposition process, ***Christophe Vallée***, University at Albany-SUNY; *Marceline Bonvalot,* Grenoble Alpes University, France; *Remy Gassilloud,* CEA-Leti, France; *Cedric Mannequin,* University of Nantes, France; *David Muñoz-Rojas,* Grenoble Alpes University, France	**INVITED: SS-WeM-13** On-Surface Synthesis and Single-Molecule Manipulation for the Atomically Precise Fabrication of Carbon Nanomaterials, ***J. Michael Gottfried***, University of Marburg, Germany
11:15am		
11:30am	**AS-WeM-15** Combining ISS, XPS and ion sputtering to discriminate Si-contamination from Si present in the stack of reticles for extreme ultraviolet (EUV) lithography, ***Véronique de Rooij-Lohmann***, *Shriparna Mukherjee, Kleopatra Papamichou,* TNO, the Netherlands Organisation for Applied Scientific Research, Netherlands	**SS-WeM-15** Impact of Subsurface Oxygen on CO Oxidation over Rhodium Surfaces, *Arved Dorst,* University of Göttingen, Germany; *Maxwell Gillum, Daniel Killelea,* Loyola University Chicago; ***Tim Schäfer***, University of Göttingen, Germany
11:45am	**AS-WeM-16** Using X-Ray Induced Auger Electron Spectroscopy Transitions to Explore the Surface Reactivity of Semi-Conductors, *Kirène Gaffar, Anna Gagliardi, Antonin Frappreau, Arnaud Etcheberry, Muriel Bouttemy,* ***Solène Béchu***, CNRS, ILV, France	
12:00pm	**AS-WeM-17** Flash Session ***Shriparna Mukherjee,*** TNO Science and Industry, the Netherlands ***Mark Baker,*** University of Surrey, U.K. ***Nicolas Molina Vergara,*** University of Texas at Austin ***Amy Ferryman,*** Physical Electronics USA ***Don Baer,*** Pacific Northwest National Laboratory	**SS-WeM-17** Beyond Optimization: Exploring Novelty Discovery in Autonomous Experiment, ***Ralph Bulanadi***, *Jawad Chowdhury,* Oak Ridge National Laboratory; *Hiroshi Funakubo,* Institute of Science Tokyo, Japan; *Maxim Ziatdinov,* Pacific Northwest National Laboratory; *Rama Vasudevan,* Oak Ridge National Laboratory; *Arpan Biswas,* University of Tennessee, Knoxville; *Yongtao Liu,* Oak Ridge National Laboratory

[1] **JVST Highlighted Talk**

[2] **SSD Morton S. Traum Award Finalist**

Wednesday Morning, September 24, 2025

	Room 209 F W	
8:00am	**INVITED: SE-WeM-1** Tools for High-Throughput Autonomous Materials Discovery and Development for the Surface Engineer, ***Christopher Muratore***, University of Dayton	**Advanced Surface Engineering** **Session SE-WeM** **Advanced Surface Treatments for Enhanced Material Performance** **Moderator:** **Diana Berman**, University of North Texas
8:15am		
8:30am	**SE-WeM-3** Hydrophobic and Hydrophilic Metallic Coatings: Their Sputter Depositions and Applications, ***Jinn P. Chu***, National Taiwan University of Science and Technology, Taiwan	
8:45am	**SE-WeM-4** Surface Engineering of Organic Nm-Thick PEDOT:PSS Films for Enhanced Electrical Conductivity, *Aaron DiFilippo,* Virginia Tech*; Amrita Chakraborty,* Virginia Tech, United States Minor Outlying Islands (the)*;* ***Marius Orlowski****,* Virginia Tech	
9:00am	**SE-WeM-5** Atomic Oxygen-Resistant Metal Oxide Coatings for Space Operations in Low-Earth Orbit, ***Joslin S. Prasanna (Graduate Student)***[1,2]*, Javier Meza-Arroyo, Minglei Sun, Chase Hazboun,* Department of Materials Science and Engineering, University of Texas at Dallas*; Fernando Quintero-Borbon,* Centro de Investigación en Materiales Avanzados S.C. (CIMAV), Unidad Monterrey, Mexico*; William Vandenberghe, Julia Hsu, Robert M. Wallace, Rafik Addou,* Department of Materials Science and Engineering, University of Texas at Dallas	
9:15am	**SE-WeM-6** Reducing Tribological Run-in Through Morphology Control: A Dual-Layer Approach for Improved Environmental Insensitivity and Tribological Performance, ***Steven Larson****, Alex Mings, Tomas Babuska, Ping Lu, Jon Vogel, Michael Dugger, John Curry,* Sandia National Laboratories	
9:30am	**SE-WeM-7** Optimizing Low-temperature MAX-phase Ti_2AlN Synthesis in Reactive TiAlN Multi-layer Thin Films, ***Moses Nnaji (Graduate Student)***[1]*, David Tavakoli,* Georgia Institute of Technology, USA*; Dale Hitchcock,* Savannah River National Laboratory*; Eric Vogel,* Georgia Institute of Technology, USA	
9:45am	**SE-WeM-8** Design of 2D Material-Based Coatings for Superlubricity in Sliding and Rolling Contacts, ***Diana Berman****, Ali Macknojia, Aditya Ayyagari,* University of North Texas	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am	**INVITED: SE-WeM-13** Physics of Sample Charging During X-Ray Photoelectron Spectroscopy: Insights from Experiments with Thin Film Insulators, ***Grzegorz (Greg) Greczynski****,* Linköping University, Sweden	
11:15am		
11:30am	**SE-WeM-15** Femtosecond Laser Ablation (fs-LA) XPS Depth Profiling for Surface Engineering, ***Mark Baker****, Charlie Chandler,* University of Surrey, U.K.*; Simon Bacon, Dhilan Devadasan,* Thermo Fisher Scientific, UK*; Oliver Parlour, Steve Hinder,* University of Surrey, U.K.*; Tim Nunney, Richard White,* Thermo Fisher Scientific, UK	
11:45am	**SE-WeM-16** In Situ SEM Study of Graphene Rheotaxy: Growth on Molten Metals, *Kristýna Bukvišová,* CEITEC; Thermo Fisher Scientific, Czechia*; Radek Kalousek,* Brno University of Technology, Czechia*; Jakub Zlámal,* CEITEC; BUT, Czechia*; Marek Patočka,* BUT, Czechia*;* ***Suneel Kodambaka****,* Virginia Tech*; Jakub Planer,* CEITEC, Czechia*; Vojtěch Mahel,* Thermo Fisher Scientific; BUT, Czechia*; Daniel Citterberg,* CEITEC, Czechia*; Libor Novák,* Thermo Fisher Scientific, Czechia*; Tomáš Šikola, Miroslav Kolíbal,* CEITEC; BUT, Czechia	
12:00pm	**SE-WeM-17** Optical Metasurfaces in Iridium for High-Temperature Applications, ***Zachary Kranefeld (Graduate Student)***[1]*, T. Pan Menasuta, Kareena Guness, Kevin Grossklaus, Thomas Vandervelde,* Tufts University	

[1] **ASED Rising Star**
[2] **JVST Highlighted Talk**

Wednesday Afternoon, September 24, 2025

	Room 201 ABCD W	
2:15pm 2:30pm	**INVITED: PS1-WeA-1** Main Etch Challenges in the GaN-based Devices, ***Patricia Pimenta Barros,*** *Simon Ruel,* Univ. Grenoble Alpes, CEA, LETI, France*; David Cascales,* Univ. Grenoble Alpes, CEA, Leti and CNRS, LTM, France*; Nicolas Posseme,* Univ. Grenoble Alpes, CEA, LETI, France*; Thoueille Philippe,* Lam Research, France*; Eugénie Martinez,* Univ. Grenoble Alpes, CEA, LETI, France*; Bassem Salem,* Univ. Grenoble Alpes, CNRS, LTM, France*; Maxime Pezeril, Khatia Benotmane,* Univ. Grenoble Alpes, CEA, LETI, France*; François Gaucher,* Lam Research, France*; Laura Vauche, Yveline Gobil,* Univ. Grenoble Alpes, CEA, LETI, France	**Plasma Science and Technology** **Session PS1-WeA** **Plasmas for Emerging Device Technologies** **Moderators:** **Michael Gordon**, University of California at Santa Barbara, **Kenji Ishikawa**, Nagoya University, Japan, **Scott Walton**, Naval Research Laboratory
2:45pm	**PS1-WeA-3** Study of N-Polar GaN Etching by a CH4/H2/Ar Plasma for µLED Applications, ***Sandra Kozuch (Graduate Student),*** *Simon Ruel, David Vaufrey, Olivier Renault,* CEA-Leti, France	
3:00pm	**PS2-WeA-4** Investigating the Thermal Behavior of Atmospheric Pressure Plasma Jets on Different Surface Types, ***Vladimir Milosavljevic,*** School of Physics, Clinical & Optometric Sciences, Technological University Dublin, Ireland & Faculty of Physics, University of Belgrade, Serbia, Ireland*; James Lalor,* School of Physics, Clinical & Optometric Sciences, Technological University Dublin, Ireland	**Plasma Science and Technology** **Session PS2-WeA** **Atmospheric Plasma** **Moderators:** **Michael Gordon**, University of California at Santa Barbara, **Kenji Ishikawa**, Nagoya University, Japan, **Scott Walton**, Naval Research Laboratory
3:15pm	**PS2-WeA-5** Controlling Nitrogen Product Distributions in Plasma Electrolytic Reactors for Microbial Growth, ***Brandon Kamiyama (Graduate Student),*** *Diep Nguyen, Mohammadali Eslamisaray, Emily Gillmore, Angela Tomita, Ting Lu, R. Mohan Sankaran,* University of Illinois at Urbana Champaign	
3:30pm	**PS2-WeA-6** Particle-in-Cell Modeling of the Reverse Anode Sheath in Parallel-Plate Sub-Atmospheric Pressure Hydrogen Plasmas, ***Brian Jensen (Graduate Student),*** Princeton University Plasma Physics Lab*; David Graves,* Princeton University	
3:45pm 4:00pm	**BREAK**	
4:15pm 4:30pm	**INVITED: PS3-WeA-9** Quantum Chemistry and Integrated Modeling for Understanding the Mechanisms of Selective and Cryogenic Atomic-Scale Etching , ***Yuri Barsukov,*** *Mingmei Wang, Qing Xu, Thorsten Lill,* Lam Research Corporation	**Plasma Science and Technology** **Session PS3-WeA** **ICP Modelling** **Moderators:** **Thorsten Lill**, Lam Research Corporation, **Shahid Rauf**, Applied Materials, USA
4:45pm	**PS3-WeA-11** Simulation of an Inductively Coupled Plasma with a Two-Dimensional Darwin Particle-in-Cell Code, *Dmytro Sydorenko,* University of Alberta, Edmonton, AB, Canada*; **Igor Kaganovich**, Alexander Khrabrov,* Princeton Plasma Physics Laboratory	
5:00pm	**PS3-WeA-12** Exploring the Impact of Mask Geometries on High Aspect Ratio Silicon Etching Using Cl_2/O_2 Plasmas, ***Shahid Rauf,*** *Xingyi Shi, Han Luo, Jason Kenney, Geuntak Lee, Sonam Sherpa, Takumi Yanagawa,* Applied Materials	
5:15pm	**PS3-WeA-13** Modeling of Remote Inductively Coupled Plasmas and Comparison to Experiments, ***Mackenzie Meyer,*** *David Boris, Michael Johnson, Jeffrey Woodward, Virginia Wheeler,* US Naval Research Laboratory*; Mark Kushner,* University of Michigan*; Scott Walton,* US Naval Research Laboratory	
5:30pm	**PS3-WeA-14** Modeling of E-H Transition in Inductively Coupled Plasmas , ***Ashish Sharma,*** *Rochan Upadhyay, Sudharshanaraj Thiruppathiraj, Dmitry Levko, Anand Karpatne, Radhika Mani,* Lam Research Corporation	
5:45pm	**PS3-WeA-15** Fully Kinetic Modeling of ICP Chambers Used for Plasma Processing, ***Daniel Main,*** *Thomas Jenkins, Scott Kruger, John Cary,* Tech-X Corporation	
6:00pm	**PS3-WeA-16** Comparative Analysis of Methods to Obtain EEDF in Plasma Simulations for Semiconductor Processing, ***Chenhui Qu,*** *Matt Talley, Saravanapriyan Sriraman,* Lam Research Corp.	

Room 205 ABCD W

2:15pm	**CA-WeA-1** Exploring Technologically Relevant Interfaces with Advanced Spectroscopy and Surface Techniques: Chemical Analysis Under Reaction Conditions Meets 2-D Electron Gas Materials, ***Patrick Lömker**, Daniel Beaton, Andrew Yost, Timo Wätjen,* Scienta Omicron	**Chemical Analysis and Imaging at Interfaces** **Session CA-WeA** **Advances in Experimental and Theoretical Insights Into Material Interfaces** **Moderators:** **Jiyoung Son**, Oak Ridge National Laboratory, **Samuel Tenney**, Brookhaven National Laboratory
2:30pm	**CA-WeA-2** Optimizing in situ liquid ToF-SIMS using SALVI and IONTOF M5-NCS, ***Jiyuong Son**, Anton Levlev, Jacob Shusterman, Xiao-Ying Yu,* Oak Ridge National Laboratory	
2:45pm	**CA-WeA-3** First Principles-Based Defect Engineering to Enhance Layered Ni-rich Cathode Performance, ***Sumaiyatul Ahsan (Graduate Student)**, Faisal M. Alamgir,* Georgia Institute of Technology, USA	
3:00pm	**CA-WeA-4** Infrared Nanoscopy of Electron-Beam Modified Metal Organic Frameworks, ***Samuel Tenney**,* Brookhaven National Laboratory*; Andrea Kraetz,* Johns Hopkins University*; Prerna Prerna, Ilja Siepmann,* University of Minnesota*; Michael Tsapatsis,* Johns Hopkins University	
3:15pm	**INVITED: CA-WeA-5** Probing the Electronic-Ionic-Mechanical Coupling at Solid-Electrolyte/Electrode Interfaces, ***Yue Qi**,* Brown University	
3:30pm		
3:45pm	**BREAK**	
4:00pm		
4:15pm	**NS-WeA-9** The Role of Defects in Ion Induced β-Ga2O3 to γ-Ga_2O_3 Conversion, *Umutcan Bektas, Oskar M. Liedke,* Helmholtz-Zentrum Dresden - Rossendorf, Germany*; Huan Liu,* helsinki University of Technology, Finland*; Fabian Ganss, Nico Klingner, René Hübner,* Helmholtz-Zentrum Dresden - Rossendorf, Germany*; Ilja Makkonen,* helsinki University of Technology, Finland*; Andreas Wagner, **Gregor Hlawacek**,* Helmholtz-Zentrum Dresden - Rossendorf, Germany	**Nanoscale Science and Technology** **Session NS-WeA** **Recent Advances in Nanoscience** **Moderators:** **Deep Jariwala**, University of Pennsylvania, **Nikolai Klimov**, NIST
4:30pm	**NS-WeA-10** Development of Heavy Noble Gas Field Ion Sources Using an Iridium Coated Single Crystalline Tungsten Emitter, ***Amina ZID (Graduate Student)**,* Helmholtz Zentrum Dresden-Rossendorf, Germany	
4:45pm	**NS-WeA-11** Unconventional Superconductivity in Quasi-1D $ZrTe_3$ Revealed by Ultra-Low-Temperature Scanning Tunneling Microscopy, ***Laxmi Bhurtel (Graduate Student)**, Dongwon Shin,* University of Tennessee Knoxville*; Sang Yong Song, Benjamin Lawrie,* ORNL*; Petro Maksymovych,* Clemson University*; Wonhee Ko,* University of Tennessee Knoxville	
5:00pm	**NS-WeA-12** Electronic and Phononic Structure of Doped Graphene/Perovskite Oxide Hybrid Heterostructure Studied by Scanning Tunneling Microscopy, ***Myeesha Mostafa (Graduate Student)**,* University of Tennessee Knoxville*; Dongwon Shin,* University of Tennessee, Knoxville*; Woo Seok Choi,* Sungkyunkwan University, Republic of Korea*; Wonhee Ko,* University of Tennessee Knoxville	
5:15pm	**NS-WeA-13** Unveiling High-Temperature Superconducting Pairing Symmetry in Monolayer FeSe via Tunneling Andreev Reflection , ***Dongwon Shin**, Paolo Vilmercati, Norman Mannella,* University of Tennessee, Knoxville*; Petro Maksymovych,* Clemson University*; Wonhee Ko, Hanno Weitering,* University of Tennessee, Knoxville	

Room 206 A W

Atomic Scale Processing Mini-Symposium
Session AP+PS+TF-WeA
Thermal and Plasma enhanced Atomic Layer Etching
Moderators:
Eric Joseph, IBM T.J. Watson Research Center,
Greg Parsons, North Carolina State University

2:15pm	**AP+PS+TF-WeA-1** Selectivity During Spontaneous Dry Thermal Etching of Si-Based Materials by Hydrogen Fluoride, *Marcel Junige, Micah Duffield,* ***Steven George,*** University of Colorado at Boulder
2:30pm	**AP+PS+TF-WeA-2** ZrO2 Thermal Atomic Layer Etching Using HF for Fluorination and TiCl4 for Ligand Exchange: Effect of Processing Parameters, ***Chen Li (Graduate Student),*** *Troy Colleran,* University of Colorado Boulder*; Beomseok Kim, Hanjin Lim,* Samsung Electronics Co., Republic of Korea*; Steven George,* University of Colorado Boulder
2:45pm	**AP+PS+TF-WeA-3** SiO_2 Etching by HF in a Liquid-Like H_2O Layer in a Vacuum Environment, ***Samantha Rau (Graduate Student)***[1], *Micah Duffield,* University of Colorado at Boulder*; Antonio Rotondaro, Hanna Paddubrouskaya, Kate Abel,* Tokyo Electron America, Inc.*; Steven George,* University of Colorado at Boulder
3:00pm	**AP+PS+TF-WeA-4** Wet-Like Atomic Layer Etching of WCN by Applying the Leidenfrost Effect to Obtain Floating Nanomist-Assisted Vapor Etching, ***Thi-Thuy-Nga Nguyen,*** Nagoya University, Japan*; Kazunori Shinoda, Kenji Maeda, Kenetsu Yokogawa, Masaru Izawa,* Hitachi High-Tech Corp., Japan*; Kenji Ishikawa, Masaru Hori,* Nagoya University, Japan
3:15pm	**AP+PS+TF-WeA-5** Thermal Atomic Layer Etching of Hafnium–Zirconium Oxide (HZO) Using Organofluorides for Fluorination, ***Aziz Abdulagatov****, Jonathan Partridge,* University of Colorado at Boulder*; Matthew Surman,* ASM Microchemistry Ltd., Finland*; Steven George,* University of Colorado at Boulder
3:30pm	**AP+PS+TF-WeA-6** Selective Atomic Layer Etching of SiO_2 over Si_3N_4 via TMA Surface modification and SF6 Remote Plasma, ***Jieun Kim****, Min Kyun Sohn, Sun Kyu Jung, Min-A Park, Jin Ha Kim, Jaeseoung Park, Subin Heo, Sang-Hoon Kim, Jeong Woo Park, Seong Hyun Lee, Dongwoo Suh,* Electronics and Telecommunications Research Institute, Republic of Korea
3:45pm	**BREAK**
4:00pm	
4:15pm	**AP+PS+TF-WeA-9** Mitigating Redeposition in Directional Atomic Layer Etching of Lithium Niobate Using HBr Plasma, *Ivy Chen,* Caltech*; Frank Greer,* Jet Propulsion Laboratory (NASA/JPL)*;* ***Austin Minnich****,* Caltech
4:30pm	**AP+PS+TF-WeA-10** Atomic Layer Etching of Sputter-Deposited AlN Thin Films in Cl2-Ar Plasmas, *Iurii Nesterenko*[1]*,* Silicon Austria Labs GmbH, Austria*; Jon Farr,* Applied Materials, Inc.*; Steffen Harzenetter,* Applied Materials, Inc., Germany*; Dmytro Solonenko, Benjamin Kalas, Thang Dao,* Silicon Austria Labs GmbH, Austria*; Julian Schulze,* Ruhr University Bochum, Germany*;* ***Nikolai Andrianov****,* Silicon Austria Labs GmbH, Austria
4:45pm	**AP+PS+TF-WeA-11** Sub-Surface TiO2 Atomic Layer Etching (ALE) Through W Films, ***Hannah Margavio (Graduate Student)****, Gregory Parsons,* North Carolina State University
5:00pm	**AP+PS+TF-WeA-12** Pulsed Plasma Strategies for High-Precision Pseudo-Atomic Layer Etching, ***Maryam Khaji,*** University of Michigan*; Qinzhen Hao, Mahmoud A. I. Elgarhy, Jeremy Mettler,* University of Houston*; Hyunjae Lee, Sang Ki Nam,* Mechatronics Research, Samsung Electronics Co, Republic of Korea*; Vincent Donnelly,* University of Houston*; Mark J. Kushner,* University of Michigan
5:15pm	**AP+PS+TF-WeA-13** Development of Atomic Layer Etching Process Dedicated to Diamond Electronic Devices, ***Marine Régnier (Graduate Student),*** Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel; Institute of Applied Physics, University of Tsukuba; Japanese-French Laboratory for Semiconductor Physics and Technology J-FAST, CNRS, Univ. Grenoble Alpes, University of Tsukuba, France*; Aboulaye Traoré,* LSPM, CNRS, Université Sorbonne Paris Nord, France*; Marceline Bonvalot,* Univ. Grenoble Alpes, CNRS, Grenoble INP, LTM; Japanese-French Laboratory for Semiconductor Physics and Technology J-FAST, CNRS, Univ. Grenoble Alpes, University of Tsukuba, France*; Etienne Gheeraert,* Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel; Institute of Applied Physics, University of Tsukuba; Japanese-French Laboratory for Semiconductor Physics and Technology J-FAST, CNRS, Univ. Grenoble Alpes, University of Tsukuba, France
5:30pm	**AP+PS+TF-WeA-14** Atomic Layer Etching for Vertical Trench Control and Electrical Optimization in HDLK Materials, ***Sanghyun Lee****, Keun Hee Bai,* Samsung Electronics, Republic of Korea
5:45pm	**AP+PS+TF-WeA-15** Mechanisms of Atomic Layer Etching of Ni3Al, ***Owen Watkins (Graduate Student)****, Taylor G. Smith,* University of California, Los Angeles*; Jean-François de Marneffe,* IMEC, Belgium*; Jane P. Chang,* University of California, Los Angeles
6:00pm	**AP+PS+TF-WeA-16** In-situ Comparative Analysis of Surface Reactions During Isotropic Atomic Layer Etching of TiC under Various Plasma Chemistries and Infrared Heating, ***Kazunori Shinoda****,* Hitachi High-Tech Corporation, Japan*; Thi-Thuy-Nga Nguyen,* Nagoya University, Japan*; Dai Ishikawa, Kenetsu Yokogawa, Masaru Izawa,* Hitachi High-Tech Corporation, Japan*; Kenji Ishikawa, Masaru Hori,* Nagoya University, Japan

[1] **JVST Highlighted Talk**

Wednesday Afternoon, September 24, 2025

	Room 206 B W	
2:15pm	**TF1-WeA-1** Hybrid Molecular Layer Deposition of Multi-Metal Alkoxide Resists for Electron Beam and Extreme Ultraviolet Lithography, ***Long Viet Than (Graduate Student)***, *Stacey F Bent,* Stanford University	**Thin Films** **Session TF1-WeA** **VSHOP V – Vapor Synthesis of Hybrid Materials and Their Properties** **Moderators:** **Yifan Cheng**, Virginia Tech, **Matthias Young**, University of Missouri
2:30pm	**TF1-WeA-2** High-Throughput MLD Screening of Photoresists for EUV Lithography via UV and E-Beam Exposure, ***Duncan Reece (Graduate Student)***, *David Bergsman,* University of Washington	
2:45pm	**TF1-WeA-3** Transforming Photo-Polymerized Organic Networks into Ceramics via Vapor Phase Infiltration (VPI), ***Ronan Neill (Undergraduate)***, *Li Zhang, Mark Losego,* Georgia Institute of Technology	
3:00pm	**TF1-WeA-4** Measuring the Coefficient of Thermal Expansion for Vapor Phase Infiltrated Ultra-low-k Dielectric Materials for Advanced Packaging, ***Pragna Bhaskar***, *Li Zhang, Mohanalingam Kathaperumal, Mark Losego,* Georgia Institute of Technology	
3:15pm	**TF1-WeA-5** Machine Learning Predictions for Selecting Organic Small Molecules in Atomic Layer Processing, ***Lucas R Kuehnel (Graduate Student)***, *Erick A Gutierrez-Monje, Anthony A Khoury, Campbell A Sweet, Matthias J Young,* University of Missouri-Columbia	
3:30pm	**TF1-WeA-6** Physical Vapor Deposition of Metal Iodide Thin Films for Radiation Detections, ***Jun Wang***, Radiation Monitoring Devices Inc.; *Matthew Loyd,* Oak Ridge Natinal Laboratory; *Nicholas Anastasi, Lakshmi S. Pandian, Vivek V. Nagarkar,* Radiation Monitoring Devices Inc.	
3:45pm	**BREAK**	
4:00pm		
4:15pm	**TF2-WeA-9** Flipping the Switch on Tin Sulfide Deposition: From SnS to SnS_2, *Christopher Brewer, Hy Nguyen, Reed Woolard,* ***Amy Walker***, University of Texas at Dallas	**Thin Films** **Session TF2-WeA** **Fundamentals of Thin Films II** **Moderators:** **Qihua Zhang**, Pennsylvania State University
4:30pm	**TF2-WeA-10** Homoepitaxial Growth of ZrB2 on a ZrB2(0001) Surface, *Michael Trenary,* ***Ayoyele Ologun (Graduate Student)***, University of Illinois - Chicago	
4:45pm	**TF2-WeA-11** Multilayered Films for High Hardness, ***Nestor Marquez Rios (Graduate Student)***, *Nathaniel McIlwaine, Jon-Paul Maria,* The Pennsylvania State University	
5:00pm		
5:15pm	**TF2-WeA-13** Machine-Learned Relationships between Particle Flux, Kinetic Energy, and Experimental Conditions in Pulsed Laser Deposition, *Zahra Nasiri, Dorien Carpenter, Jacob H Paiste,* University of Alabama at Birmingham; *Sumner B Harris,* Oak Ridge National Laboratory, USA; ***Renato P Camata***, University of Alabama at Birmingham	
5:30pm		

Wednesday Afternoon, September 24, 2025

	Room 207 A W	
2:15pm	**EM1+AP+CPS+MS+PS+SM+TF-WeA-1** Impact of Precursor Purge Time on the Performance of Ferroelectric Hf0.5Zr0.5O2 Prepared by Plasma-Enhanced Atomic Layer Deposition, ***Yong Kyu Choi (Graduate Student)***, *Benjamin Aronson, Megan Lenox, Liron Shvilberg,* University of Virginia, USA; *Chuanzhen Zhou,* North Carolina State University; *Kristina Holsgrove,* Queen's University Belfast, UK; *Amit Kumar,* Queen's University Belfast, UK; *Andrea Watson, Stephen J. McDonnell, Jon F. Ihlefeld,* University of Virginia, USA	**Electronic Materials and Photonics** **Session EM1+AP+CPS+MS+PS+SM+TF-WeA** **Materials and Devices in Emerging Memories** **Moderators:** **M. David Henry**, Sandia National Labs, **Philip Lee**, University of Kentucky
2:30pm	**EM1+AP+CPS+MS+PS+SM+TF-WeA-2** Effect of Atomic Layer Annealing Duration on Phase Stabilization of Hafnium Zirconium Oxide Thin Films, ***Nicolas Lam (Graduate Student)***, University of Virginia; *Gerald Bejger, John Barber,* Virginia Tech; *Megan Lenox, Liron Shvilberg,* University of Virginia; *Christina Rost,* Virginia Tech; *Jon Ihlefeld,* University of Virginia	
2:45pm	**EM1+AP+CPS+MS+PS+SM+TF-WeA-3** Understanding Time-Dependent Imprint in Hafnium Zirconium Oxide Based Ferroelectric Tunnel Junctions, ***Megan Lenox (Graduate Student)***, University of Virginia, USA; *Samantha Jaszewski,* Sandia National Laboratories; *Jon Ihlefeld,* University of Virginia, USA; *M. David Henry,* Sandia National Laboratories, USA	
3:00pm	**EM1+AP+CPS+MS+PS+SM+TF-WeA-4** Disentangling Gamma-Ray Radiation Effects and Time-Dependent Imprint on Ferroelectric Hafnium Zirconium Oxide-Based Devices, ***Samantha Jaszewski***, Sandia National Laboratories; *Megan Lenox, Jon Ihlefeld,* University of Virginia; *M. David Henry,* Sandia National Laboratories	
3:15pm	**EM2+AP+NS+TF-WeA-5** In-Situ Characterisation of Solid Electrolyte Interphase Formation on Lithium Metal for Energy Storage, ***Anthony Somers***, Deakin University, Australia	**Electronic Materials and Photonics** **Session EM2+AP+NS+TF-WeA** **Advances in Materials and Devices for Energy Storage** **Moderators:** **Claire Davis-Wheeler Chin**, Sandia National Lab, **Alexander Kozen**, University of Vermont
3:30pm	**EM2+AP+NS+TF-WeA-6** Intercalation of Polyacrylonitrile Nanoparticles in Ti3C2 MXene Layersfor Improved Supercapacitance, ***Shanna Marie Alonzo (Graduate Student)***, *Bishnu Bastakoti,* North Carolina A&T State University	
3:45pm	**BREAK**	
4:00pm		
4:15pm	**EM3+TF-WeA-9** Writable and Spectrally Tunable Cadmium Oxide Plasmonics via Gallium-Ion Implantation, ***Maxwell Tolchin (Graduate Student)***[1], The Pennsylvania State University; *Bhaveshkumar Kamaliya,* McMaster University, Canada; *Angela Cleri,* The Pennsylvania State University; *Youngji Kim,* Vanderbilt University; *Morvarid Ghorbani,* McMaster University, Canada; *Anton Ievlev,* Center for Nanophase Materials Sciences, Oak Ridge National Laboratory; *Nabil Bassim,* McMaster University, Canadian Centre for Electron Microscopy, Canada; *Joshua D. Caldwell,* Vanderbilt University, Sensorium Technological Laboratories; *Jon-Paul Maria,* The Pennsylvania State University	**Electronic Materials and Photonics** **Session EM3+TF-WeA** **Materials and Devices for Advanced Photonics and Plasmonics** **Moderators:** **Erin Cleveland**, Laboratory of Physical Sciences
4:30pm		
4:45pm	**EM3+TF-WeA-11** Nano-Plasmonics for Hybrid, Far IR Photodetection: Simulation and Fabrication, ***Basil Vanderbie (Graduate Student)***, *Samuel Fedorka, Charles Dickerson, John McElearney,* Tufts University; *Corey Shemelya,* Government; *Thomas Vandervelde,* Tufts University	
5:00pm		
5:15pm		

[1] **JVST Highlighted Talk**

Wednesday Afternoon, September 24, 2025

	2D Materials **Room 208 W - Session 2D+EM+NS+QS+SS+TF-WeA** **2D Materials: Synthesis and Processing** **Moderators:** **Tiancong Zhu**, Purdue University	**Surface Science** **Room 209 CDE W - Session SS-WeA** **Heterogeneous Catalysis II** **Moderators: Tim Schäfer**, Georg-August Universität, Göttingen, Germany, **Dan Killelea**, Loyola University Chicago
2:15pm	**INVITED: 2D+EM+NS+QS+SS+TF-WeA-1** Process Discovery for Quantum Materials, ***Stephan Hofmann***, University of Cambridge, UK	**INVITED: SS-WeA-1** "Single-Atom" Catalysis: Insights From Model Systems, ***Gareth Parkinson***, TU Wien, Austria
2:30pm		
2:45pm	**2D+EM+NS+QS+SS+TF-WeA-3** Selective Area Epitaxy of van der Waals Materials, ***Ryan Trice (Graduate Student)***[1], *Stephanie Law,* Penn State University	**SS-WeA-3** Ligand-coordinated Supported Catalysts for Selective Hydrocarbon Chemistry, ***Steven Tait***[1], Indiana University
3:00pm	**2D+EM+NS+QS+SS+TF-WeA-4** Precision Synthesis and Conversion of 2D Materials by Pulsed Laser Deposition with in Situ Diagnostics, ***Daniel T. Yimam***[1], *Sumner B. Harris,* Oak Ridge National Laboratory, USA; *Austin Houston,* University of Tennessee Knoxville; *Ivan Vlassiouk,* Oak Ridge National Laboratory, USA; *Alexander Puretzky,* Oak Ridge National Laboratory; *Gerd Duscher,* University of Tennessee Knoxville; *Kai Xiao,* Oak Ridge National Laboratory, USA; *David B. Geohegan,* University of Tennessee Knoxville	**SS-WeA-4** Ethanol Oxidation over Single-atom Model Rh/Fe_3O_4(001) Catalysts, ***Daniel Baranowski***, Physical and Computational Sciences Directorate and Institute for Integrated Catalysis, Pacific Northwest National Laboratory
3:15pm	**INVITED: 2D+EM+NS+QS+SS+TF-WeA-5** AVS Peter Mark Memorial Award Talk: Exploiting Thin Film Phase Diagrams for Synthesizing 2D Transition Metal Dichalcogenides, ***Nicholas R. Glavin***, Air Force Research Laboratory	**SS-WeA-5** Structure of Chemisorbed 1,3-Butadiene on the Cu(111) Surface and Its Influence on Selective Hydrogenation on a Pd/Cu(111) Single-Atom-Alloy, ***Mohammad Rahat Hossain (Graduate Student)***, *Michael Trenary,* University of Illinois - Chicago
3:30pm		**SS-WeA-6** Well-Defined Cu-Delafossite Catalysts, ***Dario Stacchiola***, Brookhaven National Laboratory
3:45pm	**BREAK**	**BREAK**
4:00pm		
4:15pm	**INVITED: 2D+EM+NS+QS+SS+TF-WeA-9** Designer van der Waals Materials for Quantum Optical Emission, *Shengxi Huang,* ***Wenjing Wu,*** Rice University	**INVITED: SS-WeA-9** Formation of Monodispersed Palladium–Tellurium Nanoclusters on WTe_2(001): The Role of Excess Tellurium and Water, ***Zdenek Dohnalek***, Pacific Northwest National Laboratory
4:30pm		
4:45pm	**2D+EM+NS+QS+SS+TF-WeA-11** Macroscopic Tin Monochalcogenide Van Der Waals Ferroics: Growth, Domain Structures, Curie Temperatures and Lateral Heterostructures, ***Eli Sutter***, *Peter Sutter,* University of Nebraska - Lincoln	**SS-WeA-11** Thermally Driven Chemical and Morphological Transition of Nb2O5 to NbO, ***Jasper Brown (Graduate Student)***, *Van Do, Steven Sibener,* University of Chicago
5:00pm	**2D+EM+NS+QS+SS+TF-WeA-12** Machine Learning Analysis of Molecular Beam Epitaxy Growth Conditions, *Mingyu Yu, Ryan Trice, Isaiah Moses, Wesley Reinhart,* ***Stephanie Law***, Penn State University	**SS-WeA-12** Size and Support Effects on Propanol Electro-Oxidation Catalyzed by Sub-Nano, Size-Selected Ptn Clusters, ***Zihan Wang (Graduate Student)***, *Lokesh Saravanan, Ratul Khan, Thaylon Hernandez, Scott Anderson,* University of Utah
5:15pm	**2D+EM+NS+QS+SS+TF-WeA-13** Promoting Crystallographic Alignment in SnSe Thin Films using Step Edges on MgO by MBE, ***Jonathan Chin (Graduate Student)***, *Marshall Frye, Joshua Wahl, Kayla Chuong,* Georgia Institute of Technology; *Mengyi Wang, Derrick Liu,* Pennsylvania State University; *Mingyu Yu,* University of Delaware; *Qihua Zhang, Nadire Nayir, Adri van Duin, Maria Hilse, Stephanie Law,* Pennsylvania State University; *Lauren Garten,* Georgia Institute of Technology	**SS-WeA-13** Adsorption of Carboxylic Acids and Reaction-driven Morphological Changes on the Fe3O4(001) Surface, *Jose Ortiz-Garcia*[1], *Marcus Sharp, Benjamin Jackson, Mal Soon Lee, Peter Rice, Bruce Kay,* ***Zbynek Novotny***, *Zdenek Dohnalek,* PNNL
5:30pm	**2D+EM+NS+QS+SS+TF-WeA-14** Synthesis of Millimeter-Scale Single-Crystal α-MoO_3 Nanosheets on Sapphire, ***Ryan Spangler (Graduate Student)***, Pennsylvania State University; *Thiago Arnaud, Joshua Caldwell,* Vanderbilt University; *Jon-Paul Maria,* Pennsylvania State University	**SS-WeA-14** Oxidation of a Rh(111)/(322) Bisected Crystal, ***Maxwell Gillum (Graduate Student)***, *Alexis Gonzalez, Elizabeth Serna-Sanchez, Allison Kerr, Stephanie Danahey,* Loyola University Chicago; *Arved Dorst, Johhanes Dietrich,* Georg-August Universität, Göttingen, Germany; *Tim Schäfer,* georg-August Universität, Göttingen, Germany; *Dan Killelea,* Loyola University Chicago
5:45pm	**2D+EM+NS+QS+SS+TF-WeA-15** Studying the Impacts of Growth Temperature and Seeding Promoters on the Structural and Optoelectronic Properties of ReS_2 Grown by CVD, ***Elycia Wright (Undergraduate)***, *Kedar Johnson, Amari Gayle, Robin Rouseau, M.K. Indika Senevirathna, Michael D. Williams,* Clark Atlanta University	**SS-WeA-15** Flash Session ***Krystal Woodruff,*** Kyma Technologies ***Nipun Kahagalla Dewage,*** Tufts University ***Shilpa Choyal,*** University of Illinois at Chicago ***John Mason,*** University of Delaware ***Kaitlyn Handy,*** University of Notre Dame ***Nicholas Hendricks,*** Heidelberg Instruments Nano AG, Switzerland ***Vishwa Don Lokugan Hewage,*** University of Illinois - Chicago ***Dennis Meier,*** Tufts University, Germany ***Sheilah Cherono,*** North Carolina A&T State University ***Farzad Bastani,*** University of Virginia, USA
6:00pm	**2D+EM+NS+QS+SS+TF-WeA-16** Growth and Characterization of InSe Thin Films on GaAs(111)B and Si(111), ***Maria Hilse***, Penn State University	

[1] **JVST Highlighted Talk**

Wednesday Afternoon, September 24, 2025

	Room 209 F W	
2:15pm	**INVITED: MI+2D-WeA-1** Probing Heterogeneity in 2D van der Waals Materials via Cryogenic STEM, ***Miaofang Chi***, *Joy Chao, Haoyang Ni,* Oak Ridge National Lab	**Magnetic Interfaces and Nanostructures** **Session MI+2D-WeA** **Magnetic Interfaces and Nanostructures Oral Session** **Moderators:** **Valeria Lauter**, Oak Ridge National Laboratory, **Hendrik Ohldag**, Lawrence Berkeley National Laboratory
2:30pm		
2:45pm	**MI+2D-WeA-3** Examining the influence of magnetic and electron beam probes on the topologically-protected edge states of 2D Bi2Te3 Nanoplates, ***Timothy Carlson (Graduate Student)***[1], *Swathi Kadaba,* Wake Forest University; *Gabriel Marcus,* Quoherent; *Motahhare Mirhosseini, David Carroll,* Wake Forest University	
3:00pm	**MI+2D-WeA-4** Surface of Topological Weyl Semimetal PtBi1.6, ***Zheng Gai***, Oak Ridge National Laboratory; *Dejia Kong,* Department of Chemistry, University of Virginia, Charlottesville, VA 22903; *Rongying Jin,* University of South Carolina, Columbia, SC 29208	
3:15pm	**INVITED: MI+2D-WeA-5** Visualizing Electronic and Magnetic Structure at Nanoscale for Spintronics, ***Jyoti Katoch***, Carnegie Mellon University, USA	
3:30pm		
3:45pm	**BREAK**	
4:00pm		
4:15pm	**INVITED: MI+2D-WeA-9** Layered Systems for Spintronics and Quantum Sensing of Spin Dynamics, ***Simran Singh***, Carnegie Mellon University	
4:30pm		
4:45pm	**MI+2D-WeA-11** Surface Electronic Structure Comparison of Fe-Intercalated and 2h-TaS_2, *Dejia Kong, Sree Sourav Das, Jacob St. Martin,* University of Virginia, USA; *Peter Siegfried,* George Mason University; *Zhiqiang Mao, Seng Huat Lee,* The Pennsylvania State University; *Ian Harrison,* University of Virginia; *Nirmal Ghimire,* University of Notre Dame; *Mona Zebarjadi,* University of Virginia, USA; ***Zheng Gai***, Oak Ridge National Laboratory, USA; *Petra Reinke,* University of Virginia, USA	
5:00pm	**MI+2D-WeA-12** Chirality, Surface Termination and Anti-ferromagnetic Alignment in Fe(III) Spin Crossover Salts, ***Mohammad Zaid Zaz (Graduate Student)***[2], University of Nebraska-Lincoln; *Wai Kiat Chin, Arjun Subedi, Gauthami Viswan,* University of Nebraska - Lincoln; *Alpha T.N'Daiye,* Advanced Light Source, Lawrence Berkeley National Laboratory; *Alexander Wysocki,* University of Nebraska-Kearney; *Rebecca Lai, Peter A Dowben,* University of Nebraska - Lincoln	
5:15pm	**MI+2D-WeA-13** Impact of Nanoscale Curvature on the Structural and Magnetic Properties of Co/Pd Alloys, ***Asma Qdemat***, *Asma Qdemat,* ORNL	
5:30pm	**MI+2D-WeA-14** Emergence of local magnetic moment in ternary $TaWSe_2$ single crystal via atomic clustering, ***Jewook Park***, Oak Ridge National Laboratory	
5:45pm		
6:00pm		

[1] **JVST Highlighted Talk**

[2] **Falicov Student Award Finalist**

Thursday Morning, September 25, 2025

	Room 201 ABCD W	
8:00am	**PS1-ThM-1** Floating Probe-Based Plasma Potential Measurement in Low-Temperature Radio Frequency Inductively Coupled Plasma, ***Isak Lee***, *Chulhee Cho, Inho Seong, Wonnyoung Jeong, Minsu Choi, Byeongyeop Choi, Jami MD Ehsanul Haque, Seonghyun Seo, Woobeen Lee, Dongki Lee, Wongyun Park, Jinhyeok Jang, Shinjae You,* Chungnam National University, Republic of Korea	**Plasma Science and Technology** **Session PS1-ThM** **Plasma Diagnostics** **Moderators:** **Thierry Chevolleau**, CEA-LETI, France, **Pingshan Luan**, TEL Technology Center America
8:15am	**PS1-ThM-2** Global Model Enabled Quantitative Diagnosis of Reactive Species in a Plasma Chamber Using RGA, ***Seonghyun Seo (Graduate Student)***, *Wonnyoung Jeong,* Chungnam National University, Republic of Korea*; Sijun Kim,* Laboratoire de Physique des Plasma (LPP)CNRS, Republic of Korea*; Youngseok Lee, Chulhee Cho, Inho Seong, Minsu Choi, Byeongyeop Choi,* Chungnam National University, Republic of Korea*; Jami Md Ehsanul Haque,* Chungnam National University, Bangladesh*; Woobeen Lee, Isak Lee, Dongki Lee, Shinjae You,* Chungnam National University, Republic of Korea	
8:30am	**INVITED: PS1-ThM-3** Absolute Atomic Density Measurements in Hydrogen- and Oxygen-Containing Plasmas for Atomic-Scale Processing, ***Jente Wubs***, *Thomas van den Biggelaar, Marnix van Gurp, Erwin Kessels,* Eindhoven University of Technology, Netherlands*; Jordyn Polito, James Ellis, Harm Knoops,* Oxford Instruments Plasma Technology, UK	
8:45am		
9:00am	**PS1-ThM-5** RF-Compensation-Free Langmuir Probe Technique via AC-Driven Biasing in a RF Plasma, ***Inho Seong (Graduate Student)***, *Chulhee Cho, Wonnyoung Jeong, Sijun Kim,* Chungnam National University, Republic of Korea*; Minsu Choi,* Chungnam National Univerisity, Republic of Korea*; Byeongyeop Choi,* Chungnam Nation Univerisity, Republic of Korea*; Ehsanul Haque Jami,* Chungnam National University, Bangladesh*; Seonghyun Seo, Woobeen Lee, Isak Lee, Dongki Lee,* Chungnam National University, Republic of Korea*; Shinjae You,* Chungnam National Univerisity, Republic of Korea	
9:15am	**PS1-ThM-6** Space and Phase-Resolved Ion Velocity Distribution Function Measurements in Electron Beam Generated E × B Plasma, ***Sung Hyun Son (Graduate Student)***, Princeton University*; Ivan Romadanov,* Princeton University Plasma Physics Lab*; Nirbhav Chopra,* Princeton University*; Yevgeny Raitses,* Princeton University Plasma Physics Lab	
9:30am	**PS1-ThM-7** Short Duty Cycle Pulsing of an RF Driven ICP with Electronegative Gases, ***Banks Peete (Graduate Student)***, *Carl Smith,* North Carolina State University*; James Prager, Paul Melnik, Tim Ziemba,* Eagle Harbor Technologies*; Sung-Young Yoon, Meehyun Lim, Sungyeol Kim,* Samsung Electronics, Republic of Korea*; John Mattingly, Steve Shannon,* North Carolina State University	
9:45am	**PS1-ThM-8** Probing Microwave-Driven Plasmas: Impact of N_2 Addition in Ar/N_2 Plasma, ***Nafisa Tabassum (Graduate Student)***, North Carolina State University*; Abdullah Zafar, Timothy Chen, Kelvin Chan,* Applied Materials*; Steven Shannon,* North Carolina State University	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	
11:00am	**PS2-ThM-13** Controlled Electron-Enhanced Silicon Etching with H_2 Background Gas and Positive Sample Voltage, ***Sumaira Yasmeen***, *Andrew Cavanagh,* University of Colorado at Boulder*; Harsono Simka,* Samsung Electronics*; Steven George,* University of Colorado at Boulder	**Plasma Science and Technology** **Session PS2-ThM** **Plasma Sources** **Moderators:** **Necip Uner**, Middle East Technical University, Turkey
11:15am	**PS2-ThM-14** Investigation of Temporal, Spatial and Angular Evolution of High-Power Impulse Magnetron Sputtering with Positive Cathode Reversal, ***Tag Choi (Graduate Student)***, *Zachary Jeckell, Sam Pickholtz, Matt Egly, Matt Salek, Ricky Pickering, Aaron Hackett, Dren Qerimi, David Ruzic,* University of Illinois at Urbana-Champaign	
11:30am	**PS2-ThM-15** University-Scale Extreme-Ultraviolet Lithography Source, *Jan Uhlig,* ***Max Miles (Graduate Student)***, *Dren Qerimi, David Ruzic,* University of Illinois at Urbana Champaign	
11:45am	**PS2-ThM-16** Understanding the Plasma in Dielectric Barrier Discharges for Plasma-Enhanced Spatial Atomic Layer Deposition, ***Ralph Houben (Graduate Student)***, *Antoine Salden, Jente Wubs, Richard Engeln, Erwin Kessels, Julian Held, Bart Macco,* Eindhoven University of Technology, Netherlands	
12:00pm		

Thursday Morning, September 25, 2025

	Electronic Materials and Photonics **Room 205 ABCD W - Session EM-ThM** **Advances in Material Deposition Techniques** **Moderators: Francois Fabreguette**, Micron, **John Muth**, North Carolina State University	**Atomic Scale Processing Mini-Symposium** **Room 206 A W - Session AP+AS+EL+EM+PS+TF-ThM** **Advancing Atomic Scale Processing through Modeling and Simulation** **Moderator: Sagar Udyavara**, Lam Research Corp
8:00am		**INVITED: AP+AS+EL+EM+PS+TF-ThM-1** Multiscale Simulations for Atomic Scale Processing, ***Michael Nolan,*** Tyndall Institute, Ireland
8:15am		
8:30am		**AP+AS+EL+EM+PS+TF-ThM-3** The Si-Cl2-Ar+ Atomic Layer Etching Window: Fundamental Insights from Molecular Dynamics Simulations and a Reduced Order Model, ***Joseph Vella***[1], TEL Technology Center, America, LLC, USA; *David Graves,* Department of Chemical and Biological Engineering Princeton University
8:45am		**AP+AS+EL+EM+PS+TF-ThM-4** Influence of Fluorination and Oxygenation Sources on the Thermal Atomic Layer Etching of MoS2, ***Spencer Smith,*** *Jacob A. Tenorio, Icelene Leong, John D. Hues, Steven M. Hues, Elton Graugnard,* Boise State University
9:00am	**EM-ThM-5** The CO_x Thermal Oxidation Process for CO_2 Capture, ***Marshall Buffett (Undergraduate),*** Voiland School on Chemical Engineering	**AP+AS+EL+EM+PS+TF-ThM-5** Insights Into Atomic Layer Etching of Diamond Surfaces, ***Jack Draney (Graduate Student),*** *Athanassios Panagiotopoulos, David Graves,* Princeton University
9:15am		**AP+AS+EL+EM+PS+TF-ThM-6** Benchmarking Large Language Models for Atomic Layer Deposition, ***Angel Yanguas-Gil,*** *Matthew T. Dearing, Jeffrey W. Elam, Jessica C. Jones, Sungjoon Kim, Adnan Mohammad, Chi Thang Nguyen, Bratin Sengupta,* Argonne National Laboratory
9:30am		**AP+AS+EL+EM+PS+TF-ThM-7** Developing a "Digital Twin" for Area-Selective Deposition on 3D Nanopatterns, ***Nicholas Carroll (Graduate Student),*** *Gregory Parsons,* North Carolina State University
9:45am		**AP+AS+EL+EM+PS+TF-ThM-8** Activation of C-X Bonds on Transition Metal Surfaces: Insight from DFT Studies, ***Matias Picuntureo,*** Universidad Tecnica Federico Santa Maria, Chile; *Ilker Tezsevin, Marc Merkx,* Eindhoven University of Technology, The Netherlands; *Scott Semproni, Jiun-Ruey Chen,* Intel Corporation; *Adriaan Mackus,* Eindhoven University of Technology, The Netherlands; *Tania Sandoval,* Universidad Tecnica Federico Santa Maria, Chile
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am		**AP+AS+EL+EM+PS+TF-ThM-13** Descriptor-driven analysis of inhibitors for AS-ALD processes, *Joost F. W. Maas, Marc J. M. Merkx,* Eindhoven University of Technology, Netherlands; *Matías Picuntureo, Lucas Lodeiro,* Universidad Tecnica Federico Santa Maria, Chile; *Adriaan J. M. Mackus,* Eindhoven University of Technology, Netherlands; ***Tania E. Sandoval***[21], Universidad Tecnica Federico Santa Maria, Chile
11:15am		**AP+AS+EL+EM+PS+TF-ThM-14** Understanding Plasma-Induced Bonding and Composition Changes in SiCN ALD via kMC–DFT Modeling, ***Ting-Ya Wang (Graduate Student),*** University of Texas at Austin; *Hu Li, Peter Ventzek,* Tokyo Electron America; *Gyeong Hwang,* University of Texas at Austin; *Jianping Zhao,* Tokyo Electron America
11:30am		**AP+AS+EL+EM+PS+TF-ThM-15** Understanding SiCN Film Oxidation Mechanism Through Density Functional Theory, ***Tsung-Hsuan Yang,*** *Hu Li, Jianping Zhao, Peter Ventzek,* Tokyo Electron America
11:45am		**AP+AS+EL+EM+PS+TF-ThM-16** From Bulk Titanium Nitride to Small Molecule Inhibitors: a DFT Study Aiming Towards Area-Selective Atomic Layer Deposition, ***Lucas Lodeiro,*** Universidad Tecnica Federico Santa Maria, Chile; *Marc J. M. Merkx,* Eindhoven University of Technology, The Netherlands; *Dennis M. Hausmann, Rachel A. Nye de Castro,* LAM Research; *Adriaan J. M. Mackus,* Eindhoven University of Technology, The Netherlands; *Tania E. Sandoval,* Universidad Tecnica Federico Santa Maria, Chile
12:00pm		**AP+AS+EL+EM+PS+TF-ThM-17** Trimethylaluminum Reactivity on SiO_2 Surfaces at Cryogenic Temperatures – Implications for Al_2O_3 ALD, ***Leonhard Winter,*** *Ravi Ranjan, Francisco Zaera,* University of California, Riverside

[1] **JVST Highlighted Talk**

[2] **TFD Paul Holloway Award Winner**

Thursday Morning, September 25, 2025

	Thin Films **Room 206 B W - Session TF+CPS+MS+EM-ThM** **Thin Films for Microelectronics I** **Moderators:** **Elton Graugnard**, Boise State University, **Robert Grubbs**, IMEC Belgium	**Actinides and Rare Earths** **Room 207 A W - Session AC+MI-ThM** **Superconductivity, Magnetism, Electron Correlation and Complex Behavior** **Moderators: Krzysztof Gofryk**, Idaho National Laboratory, **James G. Tobin**, University of Wisconsin-Oshkosh
8:00am	**INVITED: TF+CPS+MS+EM-ThM-1** Pushing the Limits of Vertical NAND Storage Technology with ALD-based Ferroelectrics, *Prasanna Venkatesan,* Georgia Institute of Technology*;* ***Asif Khan****,* Georgia Institute of Technology, USA	**INVITED: AC+MI-ThM-1** Phase Transition and Magnetism in UTe_2, ***Dominik Legut****,* VSB - Technical University of Ostrava, Czechia*; Alexander Shick,* Institute of Physics CAS, Prague, Czechia*; Urszula Wdowik,* VSB - Technical University of Ostrava, Czechia
8:15am		
8:30am	**TF+CPS+MS+EM-ThM-3** Electrical Properties of BaTiO3 Thin Films Prepared by Atomic Layer Deposition, ***Jiayi Chen (Graduate Student)****, Asif Khan, Mark Losego,* Georgia Institute of Technology	**AC+MI-ThM-3** Single-ion Anisotropy Controls Magnetic Excitations in $REMn_6Sn_6$ (RE = Tb, Dy, Ho) Ferimagnetic Kagome Metals, ***Kelsey Collins****, Michael Susner, Michael Newburger,* Air Force Research Laboratory, Materials and Manufacturing Directorate, USA
8:45am	**TF+CPS+MS+EM-ThM-4** Interlayer-Modulated Coercive Field in $HfZrO_2$ Ferroelectric Devices, ***Marshall Frye (Graduate Student)***[12]*, John Wellington-Johnson, Lance Fernandes, Prasanna Ravindran, Asif Khan, Lauren Garten,* Georgia Institute of Technology	**AC+MI-ThM-4** Suppression of the CDW State in UPt_2Si_2 by Ir Substitution; 5*f* States Into Bonding, ***Ladislav Havela****,* Charles University, Faculty of Mathematics and Physics, Czechia*; Volodymyr Buturlim,* Idaho National Laboratory*; Silvie Cerna, Oleksandra Koloskova,* Charles University, Faculty of Mathematics and Physics, Czechia*; Daniel Chaney,* ESRF, Grenoble, France*; Peter Minarik,* Charles University, Faculty of Mathematics and Physics, Czechia*; Mayerling Martinez Celis,* CRISMAT, University of Caen, France*; Dominik Legut,* Charles University, Faculty of Mathematics and Physics, Czechia
9:00am	**INVITED: TF+CPS+MS+EM-ThM-5** Towards Low-Resistance p-Type Contacts to 2D Transition Metal Dichalcogenides Using Plasma-Enhanced Atomic Layer Deposition, ***Ageeth Bol****,* University of Michigan, Ann Arbor	**INVITED: AC+MI-ThM-5** Revisiting Unconventional Superconductivity in Thorium-Doped UBe13, ***Yusei Shimizu****,* The University of Tokyo, Japan*; Mitja Krnel, Andreas Leithe-Jasper, Markus König, Ulrich Burkhardt, Nazar Zaremba, Thomas Lühmann, Manuel Brando, Eteri Svanidze,* Max Planck Institute for Chemical Physics of Solids, Germany
9:30am	**TF+CPS+MS+EM-ThM-7** DOE's Energy Efficiency Scaling for Two Decades (EES2): Featuring ALD-Fabricated Microelectronics Devices for Ultra-Energy-Efficient Computation at Argonne National Laboratory, ***Emilie Lozier****,* U.S. Department of Energy, Advanced Manufacturing Office*; Jeffrey Elam,* Argonne National Laboratory*; Desiree Salazar,* Energetics*; Tina Kaarsberg,* U.S. Department of Energy, Advanced Manufacturing Office	
9:45am	**TF+CPS+MS+EM-ThM-8** Self-Limiting Atomic Layer Deposition of Few-Layer MoS_2, ***Sungjoon Kim****, Jeffrey Elam,* Argonne National Laboratory	
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: TF+CPS+MS+EM-ThM-13** Integrated Magnetoacoustic Isolator with Giant Non-Reciprocity, *Bin Luo, Benyamin Davaji,* ***Nian-Xiang Sun****,* Department of Electrical and Computer Engineering, Northeastern University	
11:30am	**TF+CPS+MS+EM-ThM-15** Stress Control and Thermal Stability of a FeCo-Ag Multilayer Thin Films for Use in Magnetoelectric Heterostructures, ***Thomas Mion****, Konrad Bussmann,* US Naval Research Laboratory	
11:45am	**TF+CPS+MS+EM-ThM-16** Extraordinary Magnetoresistance in High-Mobility $SrTiO_3$ Thin Films, ***Zhifei Yang (Graduate Student)***[3]*, Shivasheesh Varshney,* University of Minnesota*; Sreejith Sasi Kumar, Tristan Steegemans, Rasmus Bjørk, Dennis Valbjørn Christensen,* Technical University of Denmark*; Bharat Jalan,* University of Minnesota	
12:00pm	**TF+CPS+MS+EM-ThM-17** Examining the Spin Structure of Altermagnet MnTe Epilayers Grown by Molecular Beam Epitaxy, ***Qihua Zhang***[4]*,* The Pennsylvania State University*; Mingyu Yu,* University of Delaware*; Alexander Grutter, Christopher Jenson, William Ratcliff, Julie Brochers,* National Institute for Science and Technology (NIST)*; Narendirakumar Narayanan, Thomas Heitmann,* University of Missouri*; Nitin Samarth, Stephanie Law,* The Pennsylvania State University	

[1] **AVS Russell and Sigurd Varian Awardee**
[2] **TFD James Harper Award Finalist**
[3] **AVS Graduate Research Awardee**
[4] **TFD Distinguished Technologist Award**

Thursday Morning, September 25, 2025

	2D Materials **Room 208 W - Session** **2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM** **2D Materials: Optoelectronics and Moire Excitons** **Moderators:** **Daniel Yimam**, Oak Ridge National Laboratory	**Surface Science** **Room 209 CDE W - Session SS-ThM** **Surface Electrical, Magnetic, and Optical Properties** **Moderators: Melanie Müller**, Fritz Haber Institute of the Max Planck Society, Germany
8:00am	**INVITED: 2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM-1** Probing the Ultrafast Charge Dynamics and Exciton Emission from Single Atomic Defects in 2D Semiconductors by Lightwave-Driven STM, *Laric Bobzien, Lysander Huberich, Jonas Allerbeck, Eve Ammerman, Nils Krane, Andres Ortega-Guerrero, Carlo Pignedoli, Oliver Gröning,* Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; *Joshua A. Robinson,* The Pennsylvania State University; ***Bruno Schuler,*** Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	**INVITED: SS-ThM-1** Storing and Processing Information in the Magnetic Quantum States of Single Surface Adsorbed Atoms, ***Harald Brune,*** Swiss Federal Institute of Technology Lausanne, Switzerland
8:15am		
8:30am	**2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM-3** Many-Body Effects on Excitons, Trions, and Defect-Bound States in 2D Materials, ***Kai Xiao,*** *Taegwan Park, Alexander Puretzky,* Oak Ridge National Laboratory, USA; *Xufan Li,* Honda Research Institute; *Kyungnam Kang,* Oak Ridge National Laboratory, USA; *Austin Houston,* University of Tennessee, Knoxville; *Christopher Rouleau, David Geohegan,* Oak Ridge National Laboratory, USA	**SS-ThM-3** Nonadiabatic Dynamics Simulations of Carbon Atom Scattering from Au(111), ***Alexander Kandratsenka,*** MPInat, Germany
8:45am	**2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM-4** Proximity-Induced "Magic" Raman Bands in TERS Spectra of MoS2 / WS2 @ 1L H-BN-Capped Gold, ***Andrey Krayev,*** HORIBA Scientific; *Pavel Valencia Acuna,* PNNL; *Ju-Hyun Jung,* Pohang University of Science and Technology (POSTECH), Republic of Korea; *Cheol-Joo Kim,* POSTECH, Republic of Korea; *Andrew Mannix,* Stanford University; *Eleonora Isotta,* Max Planck Institute for Sustainable Materials, Germany; *Chih-Feng Wang,* PNNL	**SS-ThM-4** Oxidation of Ni-Based Superalloys: Closing the Gap from Adsorption to Microstructure, *William Blades,* Juniata College; *Keithen Orson,* University of Virginia, USA; *Juran Niu, Alexei Zakharov,* MAX IV Laboratory, Sweden; *Jerzy Sadowski,* Brookhaven National Laboratory; ***Petra Reinke,*** University of Virginia, USA
9:00am	**INVITED: 2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM-5** Correlated Excitons in TMDC Moiré Superlattice, ***Sufei Shi,*** Carnegie Mellon University	
9:15am		**SS-ThM-6** Chemically Interrogating N-Heterocyclic Carbenes at the Single-Molecule Level Using Tip-Enhanced Raman Spectroscopy, ***Nan Jiang,*** University of Illinois - Chicago
9:30am	**2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM-7** Sub-Stoichiometric Phases in 2D $MoTe_2$, ***Onyedikachi Alanwoko (Graduate Student),*** *Nirosha Rajapakse, Matthias Batzill,* University of South Florida	**INVITED: SS-ThM-7** Atomic-Scale Spectroscopy of Ultrafast Charge Order Dynamics in Charge-Density Wave Materials, ***Sebastian Loth,*** University of Stuttgart, Institute for Functional Matter and Quantum Technologies, Germany
9:45am		
10:00am	**BREAK - Complimentary Coffee in Exhibit Hall**	**BREAK - Complimentary Coffee in Exhibit Hall**
11:00am	**INVITED: 2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM-13** Microwave Imaging of Excitonic States and Fractional Chern Insulators in 2D Transition Metal Dichalcogenides, ***Zhurun Ji,*** SLAC National Accelerator Laboratory/ MIT	**INVITED: SS-ThM-13** Measuring Properties of Single Defects, Dopants and Quantum Dots with nm Spatial Resolution, ***Peter Grutter,*** McGill University, Canada
11:15am		
11:30am	**2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM-15** Control and Properties of Single Dislocations in Van Der Waals Nanowires, ***Peter Sutter,*** *Eli Sutter,* University of Nebraska - Lincoln	**SS-ThM-15** Activating Elastic Conformation of a Single Molecule via Qplus AFM Tip, ***Markus Zirnheld (Graduate Student),*** *A.M. Shashika D. Wijerathna, Yuan Zhang,* Old Dominion University
11:45am	**2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM-16** Two-Dimensional Keldysh Theory for Non-Resonant Strong-Field Ionization of Monolayer 2D Materials, ***Tsing-Hua Her,*** UNC Charlotte; *Che-Hao Chang,* NTHU, Taiwan; *Kenan Darden,* UNC Charlotte; *Tsun-Hsu Chang,* NTHU, Taiwan; *Hsin-Yu Yao,* NCCU, Taiwan	**SS-ThM-16** Local Superconductor-to-Semiconductor Phase Transition in WS2 Controlled by STM Tip, ***TeYu Chien[1],*** University of Wyoming
12:00pm	**2D+AQS+EM+MI+MN+NS+QS+SS+TF-ThM-17** Thickness Dependent Band Gap and Electrical Anisotropy of 2DSnSe, *Marshall Frye, Jonathan Chin, Joshua Wahl, Jeremy Knight,* Georgia Institute of Technology; *Walter Smith,* Purdue University; *Dilara Sen, Samuel Kovach,* Kenyon University; *Frank Peiris,* Kenyon College; *Charles Paillard,* University of Arkansas; *Thomas Beechem,* Purdue University; *Anna Osterholm,* ***Lauren Garten,*** Georgia Institute of Technology	**SS-ThM-17** Multimodal Tool Combining Multichannel HREELS and ARPES/XPS to Study Electron-Boson Coupling, ***Takahiro Hashimoto,*** *TImo Wåtjen,* Scienta Omicron AB, Sweden; *Xin Zhang, Andrew Yost, Daniel Beaton,* Scienta Omicron, Inc.; *Harald Ibach, Stefan Tautz, François Bocquet,* Forschungszentrum Jülich GmbH, Germany

Thursday Afternoon, September 25, 2025

	Room 201 ABCD W	
2:15pm	**INVITED: PS+AIML-ThA-1** Machine Learning for Low Temperature Plasma Applications, ***Abhishek Verma***, *Kallol Bera, Shahid Rauf,* Applied Materials, Inc.	**Plasma Science and Technology** **Session PS+AIML-ThA** **Plasma Modelling AI/ML** **Moderators:** **Kenji Ishikawa**, Nagoya University, Japan, **Angelique Raley**, TEL Technology Center, America, LLC
2:30pm		
2:45pm	**PS+AIML-ThA-3** Contour-Based Objectives for Robust Etch Model Selection, ***Chad M. Huard***, *Prem Panneerchelvam, Shuo Huang, KLA; Lewis Hill, Janet Hopkins, KLA UK; Mark D. Smith,* KLA	
3:00pm	**PS+AIML-ThA-4** NAND Pillar Etch: Plasma and Feature Profile Modeling in Dry Etch Process, ***Harutyun Melikyan***, *Ebony Mays,* NAND Pathfinding - Micron Technologies*; Ali Bhuiyan, Sumeet Pandey, Jagannath Mahapatra,* Advanced Modeling - Micron Technologies	
3:15pm	**PS+AIML-ThA-5** Machine Learning of Simulated Nanosecond UV Laser Ablation Plumes, *Jacob Paiste,* University of Alabama at Birmingham*; Sumner Harris,* Oak Ridge National Laboratory*; Shiva Gupta,* University of Alabama at Birmingham*; Eric Remington,* Samford University*; Robert Arslanbekov,* CFDRC Research Corporation*;* ***Renato Camata****,* University of Alabama at Birmingham	
3:30pm	**PS+AIML-ThA-6** Flash Session ***Jameson Crouse,*** University of Illinois at Urbana-Champaign ***Sunjae Jeong,*** Sungkyunkwan University (SKKU), Republic of Korea ***Takuya Ishihara,*** Azbil corporation, Japan ***Takeshi Kitajima,*** National Defense Academy, Japan ***Ju Won Kim,*** Jeonbuk National University, Republic of Korea ***Jinyu Yang,*** University of Notre Dame ***James Prager,*** EHT Semi ***Timothy Ziemba,*** EHT Semi ***Nathan Bartlett,*** University of Illinois at Urbana-Champaign ***Tanjina Akter,*** North Carolina State University ***Logan Holler,*** University of Illinois at Urbana-Champaign	
3:45pm		
4:00pm	**PS+AIML-ThA-8** PSTD Business Meeting & Awards Ceremony	
4:15pm		

Thursday Afternoon, September 25, 2025

	Room 205 ABCD W	
2:15pm	**INVITED: MN1-ThA-1** Control of Magnetoelastic Properties for Magnetoelectric Magnetic Field Sensors, ***Margo Staruch***, US Naval Research Laboratory	**MEMS and NEMS** **Session MN1-ThA** **RF and Magnetic MEMS** **Moderators:** **Robert Davis**, Brigham Young University, **Sushma Kotru**, University of Alabama
2:30pm		
2:45pm	**MN1-ThA-3** Low-Loss Wideband Nonreciprocal Magnetoacoustic RF Isolators Enabled by Non-Collinear Dipolar-Coupled Ferromagnetic Stack, ***Bin Luo (Graduate Student)***, Department of Electrical and Computer Engineering, Northeastern University; *Andreas Winkler, Hagen Schmidt,* SAWLab Saxony, Leibniz IFW Dresden, Germany; *Vipul Sharma, Mingzhong Wu,* Department of Physics, Northeastern University; *Benyamin Davaji, Nian-Xiang Sun,* Department of Electrical and Computer Engineering, Northeastern University	
3:00pm	**MN1-ThA-4** High-Q Diamagnetically Levitated Mechanical Resonators for Magnetic Field Sensing, ***Pooja Roy (Graduate Student)***, *Samira Yasmin,* University of Central Florida; *Yunong Wang, Philip Feng,* University of Florida; *Jaesung Lee,* University of Central Florida	
3:15pm	**MN2-ThA-5** Fabrication of Wearable Carbon Microelectrode Arrays for Bioimpedance, ***Robert Davis***[1], *Nick Allen, Sharisse Poff, Shiuh-hua Wood Chiang, Brian Jensen, Richard Vanfleet,* Brigham Young University	**MEMS and NEMS** **Session MN2-ThA** **Bio and Flexible/Wearable Devices** **Moderators:** **Matthew Jordan**, Sandia National Laboratory, **Margo Staruch**, Naval Research Laboratory
3:30pm	**MN2-ThA-6** 3D Ultrablack Microstructures for Wearable Optical Spectroscopy, ***Bridgett Kemper (Undergraduate)***[1], *Woodson Parker,* Brigham Young University; *Tyler Westover,* Octavian Solutions; *Richard Vanfleet, Robert Davis,* Brigham Young University	
3:45pm	**MN2-ThA-7** A Tetrapolar Bioimpedance Sensor with Electropolymerized PEDOT:PSS Electrodes for Improved Stability in the Gastrointestinal Tract, ***Mateo Lim (Graduate Student)***, *Justin Stine, Reza Ghodssi,* University of Maryland College Park	
4:00pm	**MN2-ThA-8** Development of Ingestible Capsule Technologies for Sensing Gut Serotonin Toward Understanding the Gut-Brain Axis, ***Sydney Overton (Graduate Student)***, *Michael Straker, Reza Ghodssi,* University of Maryland, College Park	

[1] **JVST Highlighted Talk**

	Atomic Scale Processing Mini-Symposium **Room 206 A W - Session AP+PS+TF-ThA** **Emerging Applications for Atomic Scale Processing (ALD/ALE) including Precursors and Surface Reactions** **Moderators:** **Robert Bruce**, IBM Research, T. J. Watson Research Center	**Thin Films** **Room 206 B W - Session TF+CPS+MS+EM-ThA** **Thin Films for Microelectronics II** **Moderators:** **Lauren Garten**, Georgia Institute of Technology, **Christophe Vallee**, University at Albany
2:15pm	**AP+PS+TF-ThA-1** ALD Thin Films for Protecting Limestone Cultural Heritage, ***Gillian Boyce (Graduate Student)***, *Suveena Sreenilayam,* University of Maryland, College Park*; Eleonora Balliana, Elisabetta Zendri,* Università Ca' Foscari Venezia, Italy*; Raymond Phaneuf,* University of Maryland, College Park	**INVITED: TF+CPS+MS+EM-ThA-1** Area Selective Deposition Processing in the Memory Industry: How to Take Advantage of the High-Volume Manufacturing Environment, ***Francois Fabreguette***, *Jeff Hull, Huicheng Chang, Erik Byers, Gurtej Sandhu,* Micron Technology
2:30pm	**AP+PS+TF-ThA-2** Atomic Layer Depositionon Ceramic NanopowdersforPrecisely Engineered Microstructure of Sintered Ceramics, ***Eric Bissell (Graduate Student)***, *Alexandros Kostogiannes, Steve Lass, Anna Zachariou, Brian Butkus, Luis Tomar, Terrick Mcnealy-James, Ayelen Mora, Blaine Mauri-Newell,* University of Central Florida*; Nicholas Rudawski,* University of Florida, Gainesville*; Romain Gaume, Parag Banerjee,* University of Central Florida	
2:45pm	**AP+PS+TF-ThA-3** Hot-Wire-Assisted Atomic Layer Deposition of Transition Metals, ***Kyeongmin Min (Graduate Student)***, *Han-Bo-Ram Lee,* Incheon National University, Republic of Korea	**TF+CPS+MS+EM-ThA-3** BEOL-compatible (≤300 °C) top-gate HfO_2/ZnSnO Transistors Enabled by Atomic Layer Deposition for Advanced Memory Integration, ***Changyu Park (Graduate Student)***, *Jinsung Park, Joohee Oh, Hyoungsub Kim,* Sungkyunkwan University, Republic of Korea
3:00pm	**AP+PS+TF-ThA-4** Ni Thin Film Deposition Using Hot Wire ALD and Non-Halogen Precursor, ***Mruthunjaya Uddi***, *Mike Denchy, Prawal Agarwal, Josh Kintzer, Patryk Radyjowski,* Advanced Cooling Technologies Inc.	**TF+CPS+MS+EM-ThA-4** Photoluminescence Spectroscopy of Ultra-Thin GeSn Alloys Grown on Ge-on-Si Substrates, ***Vijay Gregory (Graduate Student)***, *Lia Guo, Jay Mathews,* University of North Carolina at Charlotte
3:15pm	**AP+PS+TF-ThA-5** Pyroelectric Calorimetry for ALD, ***Ashley Bielinski***, Argonne National Laboratory	**TF+CPS+MS+EM-ThA-5** Highly Ordered NiO (111) Films on Sapphire Substrates via Low-Temperature Hollow Cathode Plasma-ALD and Their Post-Deposition Annealing Characteristics, *Fatih Bayansal, Steven Allaby, Habeeb Mousa, Helena Silva*, ***Necmi Biyikli***, University of Connecticut
3:30pm	**AP+PS+TF-ThA-6** Fabrication of Atomically-Precise Nanoimprint Masks by STM Lithography, ***James Owen***[1], *Ehud Fuchs, John Randall,* Zyvex Labs	**TF+CPS+MS+EM-ThA-6** Textured Growth and Electrical Characterization of Zinc Sulfide on Back-End-of-the-Line (BEOL) Compatible Substrates, ***Claire Wu***, *Mythili Surendran, Anika Priyoti, Gokul Anilkumar,* University of Southern California*; Chun-Chen Wang,* Taiwan semiconductor Manufacturing Company, Taiwan*; Cheng-Chen Kuo, Cheng-Hsien Wu,* Taiwan Semiconductor Manufacturing Company, Taiwan*; Rehan Kapadia,* University of Southern California*; Xinyu Bao,* Taiwan Semiconductor Manufacturing Company, Taiwan*; Jayakanth Ravichandran,* University of Southern California
3:45pm	**AP+PS+TF-ThA-7** Three-In-One Isolation New Integration Solution for Monolithic CFET, *Junjie Li*, ***Longrui Xia,*** Institute of Microelectronics of the Chinese Academy of Sciences, China; ***Mingmei Wang,*** Lam Research Corporation	**TF+CPS+MS+EM-ThA-7** Thermal Atomic Layer Deposition of Molybdenum Phosphide Films, *John D. Hues, Wesley Jen,* ***Nolan Olaso (Undergraduate)***, *Steven M. Hues, Elton Graugnard,* Boise State University
4:00pm	**AP+PS+TF-ThA-8** New Silicon-containing Precursors for Metal Silicide Films, ***Sean Barry***, *Dexter Dimova,* Carleton University, Canada	
4:15pm	**AP+PS+TF-ThA-9** Conversion-free Atomic Layer Etching of ZnO Using Hydrofluoric Acid and Trimethylgallium for Reduced Residues, ***Taewook Nam***, Sejong University, Republic of Korea*; Steven George,* University of Colorado Boulder	

[1] **JVST Highlighted Talk**

Thursday Afternoon, September 25, 2025

	Actinides and Rare Earths **Room 207 A W - Session AC+MI-ThA** **Early Career and Rising Stars** **Moderators: Krzysztof Gofryk**, Idaho National Laboratory, **Evgeniya Tereshina-Chitrova**, Charles University, Prague, Czech Republic, **Itzhak Halevy**, Ben Gurion Uni. Be'er Sheva, Israel, **Edgar Buck**, PNNL	**2D Materials** **Room 208 W - Session 2D+AQS+MI+NS+QS+TF-ThA** **2D Materials: Magnets and Topological Phenomena** **Moderators:** **Rafik Addou**, The University of Texas at Dallas, **Zhurun Ji**, MIT
2:15pm	**INVITED: AC+MI-ThA-1** Combinatorically Estimating the Orbital Occupancy of Actinides using an Entropic Approach, ***Miles Beaux***, *Benjamin Heiner,* Los Alamos National Laboratory	**INVITED: 2D+AQS+MI+NS+QS+TF-ThA-1** Non-Local Transport from Magnetic Topological Superconductivity in 2D Fe-Chalcogenides, ***Kenneth Burch***, Boston College
2:30pm		
2:45pm	**AC+MI-ThA-3** Applications of Scanning Tunneling Microscopy in Heavy Element Studies, ***Benjamin Heiner***[1], *Miles Beaux,* Los Alamos National Laboratory	**INVITED: 2D+AQS+MI+NS+QS+TF-ThA-3** Integer and Fractional Chern insulators in moiré $MoTe_2$, ***Yihang Zeng***, Purdue University
3:00pm	**AC+MI-ThA-4** Electronic Structure of Uranium-Based Ferromagnet UPS, ***Sabin Regmi,*** Idaho National Laboratory*; Alexei Fedorov,* Lawrence Berkeley National Laboratory*; Dariusz Kaczorowski,* Polish Academy of Sciences, Poland*; Peter Oppeneer,* Uppsala University, Sweden*; Krzysztof Gofryk,* Idaho National Laboratory	
3:15pm	**AC+MI-ThA-5** The Plutonium Auto-reduction Reaction, Predicting Kinetics, and Assessing Impacts to Surface Science Measurements, ***Timothy Gorey***, *Daniel Rodriguez, Sarah Hernandez,* Los Alamos National Laboratory	**2D+AQS+MI+NS+QS+TF-ThA-5** Conducting Scanned Probe Investigations of the Bismuthine Termination of Intrinsic Topological Superlattice Bi_2-Bi_2Se_3, *Lakshan Don Manuwelge Don, Mysidia Leff, Md. Sakauat Hasan Sakib,* Miami University*; Seth Shields,* The Ohio State University*;* ***Joseph Corbett***, Miami University
3:30pm	**AC+MI-ThA-6** Magnetic Properties of UP_2 Probed by High-Magnetic Field, ***Volodymyr Buturllim***[1], *Sabin Regmi,* Idaho National Laboratory*; Rubi KM,* High Magnetic Field Laboratory, Los Alamos National Laboratory*; Dariusz Kaczorowski,* Polish Academy of Sciences, Poland*; Neil Harrison,* Los Alamos National Laboratory*; Krzysztof Gofryk,* Idaho National Laboratory	**2D+AQS+MI+NS+QS+TF-ThA-6** Local Spectroscopy Study of Gate-controlled Energy Gap in Monolayer 1T'-WTe_2, ***Tiancong Zhu***, Purdue University*; Zehao He,* University of California at Berkeley*; Michal Papaj,* University of Houston*; Samuel Stolz,* Department of Physics, University of California, Berkeley*; Tianye Wang, Canxun Zhang, Yan-Qi Wang, Joel Moore, Zi Qiang Qiu, Feng Wang, Michael Crommie,* University of California at Berkeley
3:45pm	**AC+MI-ThA-7** Properties of Carbon-Related Point Defects in Plutonium Oxides, ***Andrew Rowberg***, *Kyoung Eun Kweon, Scott Donald,* Lawrence Livermore National Laboratory	**INVITED: 2D+AQS+MI+NS+QS+TF-ThA-7** Exploring Moiré Magnetism in Twisted Two-Dimensional Magnets, ***Liuyan Zhao***, University of Michigan
4:00pm	**AC+MI-ThA-8** Vacancy-mediated Conduction Tunability in Epitaxial SmN, ***Kevin Vallejo***, *Volodymyr Buturlim, Zachery Cresswell, Brelon May, Brooke Campbell,* Idaho National Laboratory*; Bobby Duersch,* University of Utah*; Krzysztof Gofryk,* Idaho National Laboratory	
4:15pm		

[1] **JVST Highlighted Talk**

Thursday Afternoon, September 25, 2025

	Room 209 CDE W	
2:15pm	**INVITED: SS-ThA-1** Molecular Nanosystems at Interfaces, ***Johannes Barth***[1], TU Munich, Germany	**Surface Science** **Session SS-ThA** **Late Breaking Discoveries from the Rising Stars in Surface Science** **Moderator:** **Nan Jiang**, University of Illinois - Chicago
2:30pm		
2:45pm		
3:00pm		
3:15pm	**SS-ThA-5** THz-Induced Metastability and Atomic-Scale Dynamics of Local Charge Order in 1T-TaS_2, ***Melanie Müller***[22], Fritz Haber Institute of the Max Planck Society, Germany	
3:30pm	**SS-ThA-6** Plasmonic Probes for Liquid-Phase Tip-Enhanced Raman Spectroscopy, ***Naihao Chiang***[32], University of Houston	
3:45pm	**SS-ThA-7** Surface Science Reception,	
4:00pm		
4:15pm		

[1] **Surface Science Keynote Lecture**
[2] **JVST Highlighted Talk**

2D Materials
Room Ballroom BC - Session 2D-ThP
2D Materials Poster Session
4:30 – 7:00 pm

2D-ThP-1 Molecular Beam Epitaxy Synthesis and Characterization of 2D InSe, ***Emily Toph (Graduate Student)***, *Eric Vogel,* Georgia Institute of Technology*; Brent Wagner,* Georgia Tech Research Institute

2D-ThP-3 Charge Transfer States at the Monolayer WS_2/HAT-CN Interface, ***Xu He (Graduate Student)***, *Antoine Kahn,* Princeton University

2D-ThP-4 Enhanced Etching and Surface Cleaning of MoS_2 via Pre-Fluorination and Plasma-Activated Desorption, ***Shoaib Khalid***, *Yury Polyachenko, Yuri Barsukov, Stephane Ethier, Igor Kaganovich*, Princeton University Plasma Physics Lab

2D-ThP-5 2d Topological Phases, β-Sn Transformation, and Implications for Topological Superconductivity, ***Cheng-Maw Cheng***, National Synchrotron Radiation Research Center, Taiwan*; Ye-Shun Lan,* National Tsing Hua University, Taiwan*; Shu-Hua Kuo,* National Synchrotron Radiation Research Center, Taiwan*; Yen-Hui Lin,* National Tsing Hua University, Taiwan*; Jing-Yue Huang,* National Synchrotron Radiation Research Center, Taiwan*; Pin-Jui Hsu, Horng-Tay Jeng,* National Tsing Hua University, Taiwan

2D-ThP-9 Discretized Atomic Layer Deposition Recipe for Wafer-scale Synthesis of MoS_2, *Sachin Shendokar,* ***Shyam Aravamudhan***, North Carolina A&T State University

2D-ThP-10 Modeling Synthesis Pathways for Transition Metal Dichalcogenide Monolayers with Quantum and Statistical Learning Techniques, ***Andrew Messecar (Graduate Student)***[1], Western Michigan University*; Chen Chen, Isaiah Moses, Wesley Reinhart, Joan Redwing,* The Pennsylvania State University*; Steven Durbin,* University of Hawai'i at Mānoa*; Robert Makin,* Western Michigan University

2D-ThP-12 Band Gap Opening in AB-Stacked Bilayer Silicon, ***Kumar Vishal***, *Hong Huang, Yan Zhuang,* Wright State University

Actinides and Rare Earths
Room Ballroom BC - Session AC-ThP
Actinides and Rare Earths Poster Session
4:30 – 7:00 pm

AC-ThP-2 Deep Fission Track Analysis for Nuclear Forensics, *Noam Elgad,* Ben Gurion University Be'er Sheva, Israel*;* ***Itzhak Halevy***, *Rami Babayew,* Ben Gurion Uni. Be'er Sheva, Israel*; Mark Last, Itzhak Orion,* ben Gurion Uni. Be'er Sheva, Israel*; Jan Lorincik,* research centre rez, Czechia*; Yaakov Yehuda-Zada, Galit Katarivas Levy,* ben Gurion Uni. Be'er Sheva, Israel*; Aryeh Weiss,* bar-ilan university, israel*; Erez Gilad,* ben Gurion Uni. Be'er Sheva, Israel

Advanced Surface Engineering
Room Ballroom BC - Session SE-ThP
Advanced Surface Engineering Poster Session
4:30 – 7:00 pm

SE-ThP-2 Geometry Matters in Magnetron Sputtering: From Source Placement to Film Quality, ***Esteban Broitman***, *Rickmer Kose, Sven Kelling,* SENTYS Inc.

AI/ML Mini-Symposium
Room Ballroom BC - Session AIML-ThP
AI/ML for Scientific Discovery Poster Session
4:30 – 7:00 pm

AIML-ThP-1 AI Agents for Semiconductor Processing: A New Benchmark for Autonomous Materials Synthesis, ***Angel Yanguas-Gil***, Argonne National Laboratory

AIML-ThP-2 Domain Knowledge + AI for Chemically Accurate Potentials: Application to Diamond Surfaces, ***John Isaac Enriquez***, Princeton University Plasma Physics Lab*; Yoshitada Morikawa,* Osaka University, Japan*; Igor Kaganovich,* Princeton University Plasma Physics Lab

AIML-ThP-3 AI Operating System for Accelerating Semiconductor R&D Process Development, ***Suresh Ayyalsamy***, *Manish Sharma,* Elucida Labs

AIML-ThP-4 Physics-Informed Neural Networks for One-Dimensional Capacitively Coupled Plasma Physics Problems, ***Uvini Balasuriya Mudiyanselage (Graduate Student)***, *Jesse Jing,* Arizona State University*; Abhishek Verma, Kallol Bera, Shahid Rauf,* Applied Materials Inc.*; Kookjin Lee,* Arizona State University

Applied Surface Science
Room Ballroom BC - Session AS-ThP
Applied Surface Science Poster Session
4:30 – 7:00 pm

AS-ThP-1 EUV Induced Degradation Studies on Reticles by XPS, ***Shriparna Mukherjee***[2], *Alessandro Troglia, Véronique de Rooij-Lohmann,* TNO Science and Industry, the Netherlands

AS-ThP-2 Advanced Characterization of Sputter Induced Effects on the Work Function Using a Combined ToF-SIMS/SPM Instrument, *Bertram Schulze Lammers, Julia Zakel, Andreas Pelster, Derk Rading,* ***Thomas Grehl***, IONTOF GmbH, Germany

AS-ThP-3 Effect of Pulse Duration and Multi-shot Ablation in Femtosecond Laser Ablation (fs-LA) XPS Depth Profiling of Indium Phosphide, ***Charlie Chandler (Graduate Student)***[3], University of Surrey, UK*; Dhilan Devadasan, Simon Bacon, Tim Nunney,* Thermo Fisher Scientific, UK*; Mark Baker,* University of Surrey, UK

AS-ThP-4 Applications of Femtosecond Laser Ablation (fs-LA) XPS Depth Profiling, ***Mark Baker***, *Charlie Chandler,* University of Surrey, U.K.*; Simon Bacon, Dhilan Devadasan, Adam Bushell, Tim Nunney, Richard White,* Thermo Fisher Scientific, UK

AS-ThP-5 Standardless, Semi-quantitative ToF-SIMS depth profiling using the Full Spectrum Method (FSM), ***Nicolas Molina Vergara (Graduate Student)***, University of Texas at Austin*; John Curry, Tomas Babuska,* Sandia National Laboratories*; Filippo Mangolini,* University of Texas at Austin

AS-ThP-6 Insights Into Battery Chemistry Using TOF-SIMS, XPS, and AES, *Jacob Schmidt, Sarah Zaccarine,* ***Amy Ferryman***, Physical Electronics USA

AS-ThP-7 Update on New Guides and Tools to Encourage and Facilitate Generation and Reporting of Reliable and Reproducible Information Using Surface Analysis Methods, ***Don Baer***, *Lyndi Strange,* Pacific Northwest National Laboratory

AS-ThP-8 XPS Analysis of Plasma Exposed TiB2 and ZrB2 Substrates, ***Harry Meyer***, *Lauren Nuckols, Chad Parrish, Juergen Rapp,* Oak Ridge National Laboratory

AS-ThP-10 XPS Characterization of Thiol-Carbazole Self-Assembled Monolayers for Work Function Modulation in Organic Electronics, ***Mohamed Nejib Hedhili***, *Yu-Ying Yang, Shadi Fatayer, Martin Heeney,* King Abdullah University of Science and Technology (KAUST), Saudi Arabia

AS-ThP-11 Study of F2 Thermal Etching combined Remote Plasma treatment for Channel Release in Process of Gate-all-around FET, *Junjie Li*, Institute of Microelectronics of Chinese Academy of Sciences, China; ***Mingmei Wang,*** Lam Research Corporation

AS-ThP-12 Which Instrument Should You Use for High Lateral Resolution Chemical Analysis - SEM/EDS or ToF-SIMS?, ***Vincent Smentkowski***, *Deliang Guo,* GE Vernova Advanced Research Center*; Felix Kollmer,* ION-TOF GmbH, Germany

AS-ThP-13 Time Evolution of Chemical Reactions During Aluminium Oxide Atomic Layer Deposition on InAs, ***Eleni Charitoudi (Graduate Student)***, *Nishant Patel, Sina Ritter,* Lund University, Sweden*; Rosemary Jones,* Max IV Laboratory, Sweden*; Joachim Schnadt,* Lund University, Sweden*; Esko Kokkonen,* MAX IV Laboratory, Sweden*; Rainer Timm,* Lund University, Sweden

AS-ThP-14 Enhanced Sensitivity in Low-Energy Inverse Photoemission Spectroscopy with an Off-Axis Parabolic Mirror for Efficient Light Collection, *Jong-Am Hong, Kyu-Myung Lee, Min-Jae Maeng,* ***Yongsup Park***, Kyung Hee University, Republic of Korea

Atomic Scale Processing Mini-Symposium
Room Ballroom BC - Session AP-ThP
Atomic Scale Processing Poster Session
4:30 – 7:00 pm

AP-ThP-2 Thermal Atomic Layer Etching of Lanthanum Oxide Using Acetylacetone and Ozone, ***Aziz Abdulagatov***, *Jonathan Partridge,* University of Colorado at Boulder*; Charles Dezelah,* ASM Microchemistry Ltd., Finland*; Steven George,* University of Colorado at Boulder

AP-ThP-3 Spontaneous Etching of SiO2 by Co-Adsorbing Polar Molecules with HF, ***Marcel Junige***, *Steven M. George,* University of Colorado Boulder

[1] **JVST Highlighted Poster**
[2] **JVST Highlighted Poster**
[3] **JVST Highlighted Poster**

AP-ThP-6 Atomic Scale Processing (AP7) Sustainable Semiconductor Manufacturing (SM): Oral Session (or Poster)DOE's Sandia Project on Tunnel Field Effect Transistor (TFET) for 10X Microelectronics Energy Efficiency in a General Purpose Transistor, *Desiree Salazar,* CLEAResult Energetics, DOE/AMMTO*; Emilie Lozier,* DOE-EERE*; Shashank Misra,* Sandia National Lab*; **Tina Kaarsberg**,* DOE-EERE

AP-ThP-7 Atomic Layer Deposition of Vanadium Oxide on Silicon Oxide and Kapton Substrates*, **Mohamed Asrif (Graduate Student)**, Shyam Aravamudhan,* North Carolina A&T State University

AP-ThP-8 Development of ALD-ZrN for Diffusion Barrier Layer in ULSI-Cu Interconnects*, Jun Tanaka, Jun Yamaguchi, Noboru Sato, Naoki Tamaoki, Atsuhiro Tsukune, **Yukihiro Shimogaki**,* The University of Tokyo, Japan

AP-ThP-9 Comparative Evaluation of SiO2 Atomic Layer Etching Using NF3 and SF6 Gases via a Combined Thermal and Remote Plasma Approach*, **Min Kyun Sohn**, Jieun Kim, Sun Kyu Jung, Min-A Park, Jin Ha Kim, Jaeseoung Park, Subin Heo, Sang-Hoon Kim, Jeong Woo Park, Seong Hyun Lee, Dongwoo Suh,* Electronics and Telecommunications Research Institute, Republic of Korea

AP-ThP-11 Characterizing Remote Ar/H2 plasmas for Atomic Precision Processing*, **David Boris**, Maria Sales, Peter Litwin, Michael Johnson, Mackenzie Meyer, Virginia Wheeler, Jeffrey Woodward, Scott Walton,* U.S. Naval Research Laboratory

AP-ThP-12 From Inhibitor to Promoter: Role of Hexafluoroacetylacetone in Tailoring TiO_2 Growth on MgO Surfaces*, **Sanuthmi Dunuwila (Graduate Student)**, John R. Mason, Andrew Teplyakov,* University of Delaware

AP-ThP-13 Chemistry of a 2D Material Fe_3GaTe_2 for Atomically-Precise Processing: Etching and ALD*, **Marissa D. Piña (Graduate Student)**, Andrew V. Teplyakov,* University of Delaware

AP-ThP-14 Atomic Layer Etching of HfO_2 and ZrO_2 on Nanotrench Structures Using NbF_5 and $TiCl_4$*, **Boyun Choi (Graduate Student)**, Getasew Zewdie, Hyeyoung Shin, Nari Jeon,* Chungnam National University, Republic of Korea

AP-ThP-16 Area-Selective Deposition with Aromatic Self-Assembled Monolayer Blocking Layers*, **Michelle Paquette**, Andrew Molder, Raja Bale,* University of Missouri-Kansas City*; Sharmistha Bhattacharjee, Ben Garland,* Lehigh University*; Nathan Oyler,* University of Missouri-Kansas City*; Nicholas Strandwitz, Vamseedhara Vemuri,* Lehigh University

AP-ThP-17 Thermal Characterization of Carborane Compounds for Advanced Thin Film Deposition*, **Michael Stoll (Graduate Student)**, Gynendra Bhattarai, Rupak Thapa,* University of Missouri-Kansas City*; Mark Lee,* Twelfth Vertex LLC*; Nathan Oyler, Michelle Paquette,* University of Missouri-Kansas City

AP-ThP-18 Atomic Layer Deposition of Iridium from (EtCp)Ir(CHD) and Molecular Oxygen on the Anric AT650P ALD Tool*, **Eliza Spear**,* Anric Technologies*; Mughees Khan,* Harvard University Center for Nanoscale Systems*; Philippe de Rouffignac,* Anric Technologies

AP-ThP-19 Plasma-enhanced Atomic Layer Etching of Tungsten Disulfide*, **Jeremy Mettler**, Justin Boles, Vincent Donnelly,* University of Houston

Biomaterial Interfaces
Room Ballroom BC - Session BI-ThP
Biomaterial Interfaces Poster Session
4:30 – 7:00 pm

BI-ThP-1 Antifouling Properties of Plastron Forming, Ultra-Porous, Superhydrophobic DCP- and PFPE-Based Coatings*, **Georg Friedrich Breilmann (Graduate Student)**, Louisa Vogler, Onur Özcan, Axel Rosenhahn,* Ruhr-University Bochum, Germany

BI-ThP-2 Surface Sterilization by 260-280 nm Ultra-Violet C LEDs : Reducing the Probability of One Remaining Pathogen On A Surface to Less Than 10^{-6} – a Reproducibility & Accuracy*, **Aarnav Sathish (Undergraduate)**,* Arizona State University, SiO2 Innovates LLC, Arizona State University*; Nicole Herbots,* University of Missouri Kansas City, Arizona State University, University of California Santa Cruz*; Arjun Prabhu,* Arizona State University*; Anya Arun,* SiO2 Innovates LLC*; Zaid Abu-Salah,* University of Missouri Kansas City, SiO2 Innovates LLC*; Viraj Amin,* University of Missouri Kansas City, SiO2 Innovates LLC, Arizona State University*; Nachiket Rajinikanth*, University of Missouri Kansas City, SiO2 Innovates LLC*; Aditya Tyagi,* SiO2 Innovates LLC*; Yash Soni,* SiO2 Innovates LLC, Arizona State University*; Kush Patel,* SiO2 Innovates LLC, Arizona State University, University of California Santa Cruz*; Ashwin Suresh,* SiO2 Innovates LLC, Arizona State University, University of Arizona*; Shreyash Prakash,* SiO2 Innovates LLC, Arizona State University*; Nimith Gurijala,* SiO2 Innovates LLC, Arizona State University, Washington University in St. Louis*; Siddharth Jandhyala,* SiO2 Innovates LLC, Arizona State University, Duke University*; Arjun Sekar,* SiO2 Innovates LLC, Northwestern University*; Srivatsan Swaminathan,* SiO2 Innovates LLC, Arizona State University, Ichan School of Medicine at Mount Sinai*; Eric Culbertson,* SiO2 Innovates LLC*; Robert Culbertson,* Arizona State University

BI-ThP-3 Dynamic Bonding (Dybonding) in DPD for Simulating DNA Hybridization and Self-Assembly*, **Christina Bayard (Graduate Student)**, Yaroslava Yingling,* North Carolina State University

BI-ThP-4 Plasma Diagnostics for the Modification of Naturally Derived Biopolymers*, **Bethany Yashkus (Undergraduate)**, Mollie Corbett, Joshua Blechle,* Wilkes University

BI-ThP-5 Effect of Surface Oxidation on Carbonic Anhydrase Immobilization on Graphene Oxide: A Molecular Dynamics Study*, **Merve Fedai (Graduate Student)**, Albert Kwansa, Youngwoo Hwang, Jialong Shen, Sonja Salmon, Yaroslava Yingling,* North Carolina State University

BI-ThP-7 Differential Detection of Viral and Bacterial Infections by Macroscopic Epi-Fluorescence Combining DNA and RNA Specific Stains*, Nithish Prakash, **Sudharshini Ram (Undergraduate)**, David Guo,* Arizona State University / SiO2 Innovates LLC / InnovaBug LLC / Microbe Lab-On-Chip LLC*; Viraj Amin,* SiO2 Innovates LLC / Innovabug LLC / University of Missouri - Kansas City (School of Medicine) / Microbe Lab-On-Chip LLC*; Arya Saravanan, Sriram Rajesh, Nila Kathiravan,* Arizona State University / SiO2 Innovates LLC / InnovaBug LLC / Microbe Lab-On-Chip LLC*; Robert J. Culbertson,* Arizona State University*; Eric J. Culbertson,* SiO2 Innovates LLC / Microbe Lab-On-Chip LLC*; Nicole Herbots,* Arizona State University / SiO2 Innovates LLC / InnovaBug LLC

BI-ThP-9 Impact of Marine Biocides on Early Biofilm Community Development*, **Kailey Richard**,* Naval Research Laboratory*; Sara Tuck, Kenan Fears,* Naval Research Laboratory, USA

BI-ThP-10 Impacts of Substrate Type on Barnacle Morphology Using Microcomputed Tomography*, **Brittney Mitchell (Graduate Student)**, Beatriz Orihuela,* Duke University*; Gary Dickinson,* The College of New Jersey*; Daniel Rittschof,* Duke University

Chemical Analysis and Imaging at Interfaces
Room Ballroom BC - Session CA-ThP
Chemical Analysis and Imaging at Interfaces Poster Session
4:30 – 7:00 pm

CA-ThP-1 Depth Profiling of Perovskite Tandem Solar Cells Using Small Ar Gcib in Cluster Sims at Cryogenic Temperatures*, Kate McHardy, Naoko Sano, **Mark Mills**,* Ionoptika Ltd., UK

CA-ThP-2 Uncovering Coke-Resistant Two-Dimensional Metal Carbide Catalysts Using ToF-SIMS*, **Tobias Misicko (Graduate Student)**,* Louisiana Tech University and Oak Ridge National Laboratory*; Gabriel Parker,* Oak Ridge National Laboratory*; Yang Xiao,* Louisiana Tech University*; Xiao-Ying Yu,* Oak Ridge National Laboratory

CA-ThP-4 Tapping into Charge Storage with Operando-XPS using Coplaner Capacitors and Ionic Liquid Mixetures*, Ezgi Kutbay, **Sefik Suzer**,* Bilkent University, Turkey

CA-ThP-6 Meeting the Demand for Surface Sensitivity: The Role of LEIS*, **Joshua Pinder (Graduate Student)** [1] ,* Brigham Young University*; Stanislav Prusa,* Central European Institute of Technology, Czechia*; Matthew Linford,* Brigham Young University

CA-ThP-7 Mass Spectral Molecular Mapping Shows Benefits of Thermal Evaporation in Prelithiated Silicon-Based Composite Electrodes*, **Ivan Matyushov (Graduate Student)** [2] , Gabriel Parker, Amanda Musgrove, Gabriel Veith, Xiao-Ying Yu,* Oak Ridge National Laboratory

CA-ThP-9 Evaluation of Imbedded Barium in Graphite for Nuclear Engineering in ToF-SIMS*, **Gabriel Parker**, Thomas Muth, Victor Bautista, Xiao-Ying Yu,* Oak Ridge National Laboratory, USA

[1] **JVST Highlighted Poster**

[2] **JVST Highlighted Poster**

CA-ThP-10 Potential Use of REELS and Electron Elastic Peak Spectroscopy for Measuring and Mapping Atomic Mass resolved distributions in SEM, ***Philippe Staib,*** WSI

CA-ThP-11 Edge-Localized Strain in MoS_2 Nanobubbles Resolved at 5 nm by Chemical Imaging and Geometric Mechanics, ***Sayantan Mahapatra,*** Argonne National Laboratory, USA; *Soumyajit Rajak, Nan Jiang,* University of Illinois - Chicago; *Jeffrey Guest,* Argonne National Laboratory, USA

CHIPS Act : Semiconductor Manufacturing Science and Technologies
Room Ballroom BC - Session CPS+MS-ThP
CHIPS Act: Semiconductor Manufacturing Science and Technologies Poster Session
4:30 – 7:00 pm

CPS+MS-ThP-2 Nanostructural Characterization of 3D DRAM by 3D Reconstruction, ***Wenbin Fan,*** Applied Materials

CPS+MS-ThP-3 Summer Program Advancing Robotics and Knowledge in Microelectronics for K-12 (SPARK), *Parmida Amngostar, Soheyl Faghir Hagh, Alireza Fath, Yi Liu, Ian Cassidy, Swarup Chakraborty, Alexander Hoefer, Lanhjamin Tran, Cooper Duggan, Dryver Huston,* ***Jackson Anderson,*** *Tian Xia,* University of Vermont

CPS+MS-ThP-4 Ge and Gesn Photodetectors for Infrared Application: Toward Si-Compatible High Responsivity Devices., ***Q.M. Kamrunnahar (Graduate Student),*** *Yining Liu, Jay Mathews,* University of North Carolina at Charlotte

Electronic Materials and Photonics
Room Ballroom BC - Session EM-ThP
Electronic Materials and Photonics Poster Session
4:30 – 7:00 pm

EM-ThP-1 Comparison of Experimental Analysis and Theoretical Calculation of the Lattice Dynamics, Phonon and Vibrational Spectra Dynamics of Titanium Nitride and Oxynitride, ***Ikenna Chris-Okoro (Graduate Student),*** *Sheilah Cherono, Wisdom Akande, Swapnil Nalawade, Mengxin Liu, Barbee Brianna, Brooklyn Jenkins, Ghanashyam Gyawali, Bishnu Bastakoti, Shyam Aravamudhan, J. David Schall, Dhananjay Kumar,* North Carolina A&T State University

EM-ThP-3 Singlet Fission from Tetracene and Charge Transfer to Metal Halide Perovskites, ***Yutong Ren***[1], *Antoine Kahn,* Princeton University

EM-ThP-7 Growth of $MAPbI_3$ Single Crystals for Radiation Detection and Sensor Applications, ***Basak Bagci (Graduate Student),*** *Shams Noor, Ge Yang,* North Carolina State University

EM-ThP-8 Chemical Vapor Deposition of Uniform and Large-Scale MoS2 Using Heterogeneous Precursor, ***Xiaokai Zhu (Graduate Student),*** Duke University; *Gang Seob Jung,* Oak Ridge National Laboratory; *Jiahui Yang,* Duke University; *Xuguo Zhou,* Boston College; *Zhe Shi,* Massachusetts Institute of Technology; *Victoria Ravel, Chung-Li Lin, Xingjian Hu, Zihan Peng, Aaron Franklin,* Duke University; *Qiong Ma,* Boston College; *Tania Roy, Haozhe Wang,* Duke University

EM-ThP-9 Comprehensive Study of Tandem Cdsete Photovoltaic Devices Using Alternative Subcell Absorber Layers: Bandgap Engineering, *Chowdhury Haque,* ***Philip (Sanghyun) Lee,*** University of Kentucky; *Kent Price,* Morehead State University

EM-ThP-10 Ferroelectric Tunnel Junction NVM Stability, ***M. David Henry,*** Sandia National Laboratories

EM-ThP-11 Ab Initio Molecular Dynamics Modeling of Amorphous Titanium Silicon Nitride, *Somilkumar Rathi, Parag Banerjee,* University of Central Florida; ***Raymond Atta-Fynn,*** Los Alamos National Laboratory

EM-ThP-12 Spectroscopic Characterization and Defect Identification in Wide Bandgap Semiconducting Materials, ***Praveena Manimunda,*** HORIBA

EM-ThP-13 Flexible Perovskite Solar Cells with Reusable Stainless-Steel Foil Substrates, ***Pramod Baral,*** Verde Technologies Inc.

Light Sources Enabled Science Mini-Symposium
Room Ballroom BC - Session LS-ThP
Light Sources Enabled Science Mini-Symposium Poster Session
4:30 – 7:00 pm

LS-ThP-1 Ultrafast Materials Characterization at the NSF-NeXUS Facility, ***Seth Shields,*** *Tim Scarborough, Conner Dykstra, John Beetar, Ziling Li, Roland Kawakami, Jay Gupta,* Ohio State University

MEMS and NEMS
Room Ballroom BC - Session MN-ThP
MEMS and NEMS Poster Session
4:30 – 7:00 pm

MN-ThP-1 Statistical Analysis of 3D Printability and Mechanical Performance in Reinforced Polymer Composites, ***Vladimir Milosavljevic,*** School of Physics, Clinical & Optometric Sciences, Technological University Dublin, Ireland; *Alison J. Clarke, Denis P. Dowling,* I-Form Centre, School of Mechanical & Materials Engineering, University College Dublin, Belfield, D04 C1P1 Dublin, Ireland

MN-ThP-2 Performance of Copper Filled Through Glass Vias for Radio Frequency Applications, ***Jessica McDow (Graduate Student),*** *Scott Grutzik, Matthew Jordan,* Sandia National Laboratories

MN-ThP-3 3D Microfluidic Integrated Electronic Packaging for Enhanced Thermal Management via Two Photon Polymerization, ***Angel Yglecias (Graduate Student)***[2], University of Texas at El Paso

MN-ThP-4 Smart Wearable with Companion App for Tracking UV Index and Physical Activity, ***Zach Nesnidal (Graduate Student),*** *Sushma Kotru, Mason Wright,* The University of Alabama

Nanoscale Science and Technology
Room Ballroom BC - Session NS-ThP
Nanoscale Science and Technology Poster Session
4:30 – 7:00 pm

NS-ThP-1 Single and Dual Sintering Techniques on Flexible Metal Nanoparticle Patterns, ***Md. Mahfujur Rahman (Graduate Student),*** *Rajib Chowdhury, Seonhee Jang,* University of Louisiana

NS-ThP-3 The Nanoscale Materials Characterization Facility (NMCF) at the University of Virginia, ***Catherine Dukes,*** *Diane Dickie, Graham Frazier, Helge Heinrich, Art Lichtenberger, Joe Thompson, Richard White,* University of Virginia

NS-ThP-4 Exciton-Polariton Devices from Two-Dimensional Chalcogenide Semiconductors, ***Deep Jariwala***[3], University of Pennsylvania

NS-ThP-5 Scalable Photonics with Low-Dimensional Superlattices, ***Jason Lynch (Graduate Student),*** *Deep Jariwala,* University of Pennsylvania

NS-ThP-6 Optical Readout Approaches for Photonic Thermometry, ***Kevin Douglass,*** *Michal Chojnacky, Thinh Bui, CH S S PAVAN Kumar, Nikolai Klimov,* National Institute of Standards & Technology

NS-ThP-7 A Comprehensive Investigation of Raman Laser-Induced Structural Modification in CVD-Grown Monolayer MoS_2, ***Sieun Jang (Graduate Student),*** *Seonha Park, Songkil Kim,* Pusan National University, Republic of Korea

NS-ThP-8 Reconstructing the Cross-Sectional Form Factor in Nanoscale Line Gratings via Critical-Dimension SAXS, ***Philipp Wieser,*** Center for Functional Nanomaterials, BNL, Austria; *Kevin Yager,* Center for Functional Nanomaterials, BNL, Canada

NS-ThP-9 Phase Retrieved Atomic Structure of Nanoparticles by Using 4D STEM, ***Chien-Nan Hsiao,*** National Center for Instrumentation Research, National Institutes of Applied Research, Taiwan; *Yu-Ting Peng,* Department of Engineering and System Science, National Tsing Hua University, Taiwan; *Wen-Hao Cho, Wei-Chun Chen, Su-Chun HSIAO,* National Center for Instrumentation Research, National Institutes of Applied Research, Taiwan; *Chien-Chun Chen,* Department of Engineering and System Science, National Tsing Hua University, Taiwan

NS-ThP-10 AFM Measurements of Nanoscale Changes on CHO Cell Surface Induced by Met Receptor Activation, ***Kenta Sawada (Graduate Student),*** *Keisuke Miyazawa, Takehiko Ichikawa, Makiko Kudo, Katsuya Sakai,* Kanazawa University, Japan; *Hiroki Sato,* Yokohama City University, Japan; *Kunio Matsumoto, Takeshi Fukuma,* Kanazawa University, Japan

[1] **JVST Highlighted Poster**
[2] **JVST Highlighted Poster**
[3] **JVST Highlighted Poster**

NS-ThP-11 Manufacture of Liquid Metal Alloy Ion Source Tin-Lead for Advancement of Ion Beam Technologies and Applications, ***Bryan Flores (Graduate Student)***, *Alex Andrei Belianinov, Michael Titze, Shei Sia Su, Coleman Burdette Cariker,* Sandia National Laboratories*; Ricardo Dacosta,* University of California - Riverside

NS-ThP-12 Characterization of GAA FETs using Noise Spectroscopy after Displacement Damage, ***Ricardo Dacosta (Graduate Student)***, *Coleman Cariker, Bryan Flores, Shei Sia Su, Alex Belianinov, Michael Titze,* Sandia National Laboratories, USA

Plasma Science and Technology
Room Ballroom BC - Session PS-ThP
Plasma Science and Technology Poster Session
4:30 – 7:00 pm

PS-ThP-2 Dependence of MQW Sidewall Damage on Ion Incident Angle: Insights from Molecular Dynamics Simulations, ***Eun Koo Kim (Graduate Student)***, *Hyun Woo Tak, Geun Young Yeom,* Sungkyunkwan University (SKKU), Republic of Korea

PS-ThP-4 Atomic Layer Etching of GaN Micro Light-Emitting Diodes with Different Sidewall Slope, ***Yun Jae Park (Graduate Student)***[1], *Geun Young Yeom, Hong Seong Gil, Jong Woo Hong,* Sungkyunkwan University (SKKU), Republic of Korea

PS-ThP-5 Anomalous Behavior of Plasma Potential in a Planar Helical Resonator Discharge, ***Un Jae Jung (Graduate Student)***, *Yeong Jae Jeong, Min Seok Kim, Chin Wook Chung,* Hanyang University, Republic of Korea

PS-ThP-6 Low-damage Atomic Layer Etching process for GaN-based Light Emitting Diodes , ***Chan Ho Kim (Graduate Student)***, *Jong Woo Hong, Geun Young Yeom,* Sungkyunkwan University (SKKU), Republic of Korea

PS-ThP-7 Comparison of SiN_x/SiO_x contact hole etching between CF_4 and low global warming gas, ***Jun Won Jeong (Graduate Student)***, *Geun Young Yeom, Jong Woo Hong,* Sungkyunkwan University (SKKU), Republic of Korea

PS-ThP-8 Enhancing Etch Characteristics of MTJ using RF-Biased RIBE, ***Kyoung Chan Kim (Graduate Student)***, *Yun Jong Jang, Hong Seong Gil, Woo Chang Park, Dae Yeon Ha, Su Jeong Yang, Geun Yeong Yeom,* Sungkyunkwan University, Korea

PS-ThP-9 Etch Characteristics of Ru-Pt Composite Using Halogen-Based Gases, ***Hyeong Joon Eoh (Graduate Student)***, *Geun Young Yeom,* Sungkyunkwan University (SKKU), Republic of Korea

PS-ThP-11 Isotropic Atomic Layer Etching of MoS_2 using Oxygen Plasma and Organic Solvent Vapor, ***Sunjae Jeong (Graduate Student)***, *Hyewon Han, Jieun Kang, Jimin Kim, Geunyoung Yeom,* Sungkyunkwan University (SKKU), Republic of Korea

PS-ThP-12 Anticathode Effect on Multimodal Azimuthal Oscillations in Electron Beam Generated ExB Plasma, ***Nirbhav Chopra***, Applied Materials,Varian Semiconductor Equipment*; Yevgeny Raitses,* Princeton Plasma Physics Laboratory

PS-ThP-13 Plasmonic Plasma Process for Room Temperature Growth of Ultra-Thin Dielectric Films, ***Takeshi Kitajima***, *Machiko Miyake, Toshiki Nakano,* National Defense Academy, Japan

PS-ThP-14 Interaction of Sapphire (Single-Crystal Al_2O_3) and Ni-Based Alloy Surfaces with Halogen-Containing Plasmas and Gases, ***Takuya Ishihara***, *Hidenobu Tochigi,* Azbil corporation, Japan*; Hojun Kang,* Osaka University, Japan, Republic of Korea*; Kazuhiro Karahashi, Satoshi Hamaguchi,* Osaka University, Japan

PS-ThP-15 3D Feature Profile Simulation with Realistic Plasma Chemistry for High Aspect Ratio Etching in the Memory Industry, ***Ju Won Kim (Graduate Student)***, *Seong Yun Park, Hae Sung You, Jae Hyung Park,* Jeonbuk National University, Republic of Korea*; Kook Hyun Yoon, Sung Sik Shin, Dong Hun Yu,* KWTSolution, Republic of Korea*; Yeon Ho Im,* Jeonbuk National University, Republic of Korea

PS-ThP-16 Plasma Anodization for the Production of AlF_3 Layers, ***Scott Walton***, Naval Research Laboratory*; Javier del Hoyo,* NASA*; Michael Johnson,* Naval Research Laboratory*; Luis Rodriguez de Marcos,* NASA*; Makenzie Meyer, John Murphy,* Naval Research Laboratory*; Manuel Quijada,* NASA*; Maria Sales, Virginia Wheeler, David Boris,* Naval Research Laboratory

PS-ThP-18 Experimental Investigation of the Interactions between Piezoelectric Crystals and Plasma Discharges, ***Jinyu Yang***, *Zhongyu Cheng, Sean Kerr, David Go,* University of Notre Dame

PS-ThP-19 Tailoring of Pulse Voltage Waveform for Monoenergetic Ion Energy Distributions, ***Seokhyeon Ha (Graduate Student)***, *Hyeonho Nahm, Minseok Kim, Heejae Yang, Chin-Wook Chung,* Hanyang University, Korea

PS-ThP-21 Plasma-Assisted Uptake and Thermal Removal of Hydrogen in Liquid Lithium for Hydrogen Storage Applications, ***Braden Moore (Graduate Student)***, University of Illinois at Urbana Champaign*; Daniel O'Dea,* University of Illinois at Urbana Champaign, UK*; Meenakshee Sharma,* University of Illinois at Urbana-Champaign, India*; Elliot Sherman, Zach Nordan, Loren Calleri, Riley Trendler, David Ruzic,* University of Illinois at Urbana Champaign

PS-ThP-23 Ion & Electron Energy Control with High Voltage Tailored Bias Waveforms in a CCP, ***James Prager***, *Paul Melnik, Josh Perry, Chris Bowman, Timothy Ziemba, Kenneth E. Miller,* EHT Semi

PS-ThP-24 An RF Generator Driving an Inductively Coupled Plasma Source Without a Matching Network, ***Timothy Ziemba***, *Chris Bowman, Paul Melnik, Josh Perry, Connor Liston, James Prager, Kenneth E. Miller,* EHT Semi

PS-ThP-25 Investigation of Ion Flux/Sidewall Interactions in High Aspect Ratio (HAR) Features, ***Tanjina Akter (Graduate Student)***, *David S. Kanfer, Steven Shannon,* North Carolina State University

PS-ThP-26 Real Time Plasma Temperature Profiling Using Short Wave Infrared Imaging, ***Logan Holler (Graduate Student)***, *Drhuval Patel, Qerimi Dren, David Ruzic,* University of Illinois at Urbana-Champaign*; Michael Stowell,* Lyten

PS-ThP-27 Monitoring Net CO_2 Dissociation Rates in the Effluent of Common Plasma Discharges with Optical Emission Spectroscopy, ***Andrew C Herschberg (Graduate Student)***, *Nathan Bartlett, Jameson Crouse, Jaime Robertson, Emily Greene, David N Ruzic,* University of Illinois at Urbana-Champaign

PS-ThP-28 Measurement and Modelling of Sn-H2 Vapor Diffusion Coefficients in the Transition Flow Regime, ***Jameson Crouse (Graduate Student)***, *Nathan Bartlett, Emily Greene,* University of Illinois at Urbana-Champaign*; Shiva Rajavalu,* ASML*; Andrew Herschberg,* University of Illinois at Urbana-Champaign*; Sergio Ferraris, Niels Braaksma,* ASML*; David Ruzic,* University of Illinois at Urbana-Champaign

PS-ThP-29 Simultaneous Deposition and Removal of Tin in a Hydrogen Plasma Environment, ***Nathan Bartlett (Graduate Student)***, *Jameson Crouse, Andrew Herschberg, Emily Greene, Jaime Robertson, Jack Granat, Lucia Suarez Heredero, Matias Habib, Karl Vu, David Ruzic,* University of Illinois at Urbana-Champaign

PS-ThP-30 Plasma Cleaning Performance and GWP Reduction Using ClF3 as an NF3 Alternative in Semiconductor Manufacturing, ***Dong Ha Song (Graduate Student)***, *Sun Jae Jeong, Ga Hee Oh, Geun Young Yeom,* Sungkyunkwan University (SKKU), Republic of Korea

PS-ThP-31 EUV PR Patterned SiON Etching with Enhanced Selectivity and LER Control Using Ion Beam Technique, ***Yun Jong Jang (Graduate Student)***, *Hong Seong Gil, Kyoung Chan Kim, Woo Chang Park, Dae Yeon Ha, Geun Young Yeom,* Sungkyunkwan University (SKKU), Republic of Korea

PS-ThP-32 Reduction of Plasma-Induced Damage via Ultra-Low Electron Temperature Plasma in Gate-All-Around FET Fabrication, ***Kim Hyungdong (Graduate Student)***, *Chung ChinWook, Nahm HyunHo, Ha Seokhyun,* Hanyang University, Korea

PS-ThP-33 Micro-Masking Effects in TCP–ICP RIE with Fluorine-Based Plasmas: Influence of Alumina and Quartz Dielectric Screens, ***Giuseppe Libero Bufi (Graduate Student)***, *Pascual Muñoz, Daniel Pastor,* Universitat Politècnica de València UPV, Spain

PS-ThP-34 Computational Study of a Radio-Frequency Positive Ion Source for Neutral Beam Injectors, ***Mohammad Sazzad Hossain (Graduate Student)***, *Amanda Lietz, Tom Regev, Arthur Mazzeo, Keanu Ammons, Florian Laggner, Miral Shah, Kirtan Davda, Steven Shannon,* North Carolina State University*; Evan Kallenberg, Brendan Crowley, Tim Scoville,* General Atomics

PS-ThP-35 Amorphous Carbon Deposition: Insights from Plasma Dynamics, Feature Scale Modeling, and Density Functional Theory, *Purva Paranjape;* Purdue University, USA*; **Kallol Bera,*** Applied Materials Inc.*; Rupali Sahu, Nakul Nuwal, Sathya Ganta, Prashant Kulshreshtha,* Applied Materials, Inc.

PS-ThP-36 Spatiotemporal Analysis of a Submerged Water Plasma Driven with Nanosecond Long Voltage Pulses, *Michael Johnson, David Boris, Lina Petrova,* Naval Research Laboratory, USA*; **Mackenzie Meyer***[2], National Research Council*; Scott Walton,* Naval Research Laboratory, USA

PS-ThP-37 Reliable Monitoring of Plasma Chamber Cleaning via a Newly Developed Endpoint Evaluation Sensor, *Suyoung Jang,* ***Dohyeon Kim, Kyongnam Kim,*** Daejeon University, Republic of Korea

PS-ThP-38 Effect of H_2O Additionon Fluorocarbon Layer Formation on SiO_2 and Si_3N_4 Films inC_4F_8 Plasmas, ***Haegeon Jung (Graduate Student)***, *Heeyeop Chae,* Sungkyunkwan University (SKKU), Republic of Korea

[1] **JVST Highlighted Poster**

[2] **JVST Highlighted Poster**

PS-ThP-39 Data-Driven Sputtering Yield Prediction for DC Magnetron Sputtering, ***Eunseo Lee (Graduate Student)***, *Hae June Lee,* Pusan National University, Republic of Korea

PS-ThP-40 Ultra-Low Temperature Dopant Activation Enabled by Plasma Enhanced Annealing, ***Zhihao Ma (Graduate Student)***, University of Texas at Dallas; *Mahsa Shekarnoush, Yuanning Chen, Malcolm Bevan, Harvey Stiegler,* MicroSol Technologies Inc.; *Lawrence Overzet,* University of Texas at Dallas

PS-ThP-41 Tailored Waveforms for Ion Energy Control in ALE Applications, *Sebastian Mohr, Hyungseon Song,* ***Lucy Manukyan***, Quantemol Ltd., UK

Quantum Science and Technology Mini-Symposium
Room Ballroom BC - Session QS-ThP
Quantum Science and Technology Mini-Symposium Poster Session
4:30 – 7:00 pm

QS-ThP-1 Frugal Quantum Magnetometry for Education, ***John Muth***, *Jonathan Rabe,* North Carolina State University

QS-ThP-5 Accurate Atomic Correlation and Total Energies for Correlation Consistent Effective Core Potentials (ccECP) for Transition Metals, ***Aqsa Shaikh (Graduate Student)***, North Carolina State University, India

QS-ThP-6 Optimization of DC Magnetron Sputtering Process for Coherent Nb-based Superconducting Quantum Electronics, ***Kiana Reed (Undergraduate)***, *Joseph Falvo, Marcelo Velasco-Forest, Ivan Lainez, Kasra Sardashti,* Laboratory for Physical Sciences

QS-ThP-7 Tunable Superconducting Properties in Mesoscopic SNS Island Arrays, ***Shiva Dahal***, Winston-Salem State University; *Bernadeta Srijanto,* Oak Ridge National Laboratory; *Kasra Sardashti,* University of Maryland College Park; *John Yi,* Winston-Salem State University

QS-ThP-8 Probing the Functional Efficacy of Tunable SSWM Microring Resonators as Couplers for Tri-State Entanglement in Photonic Quantum Processors, ***Arsh Jha (Undergraduate)***, North Carolina Central University

Spectroscopic Ellipsometry
Room Ballroom BC - Session EL-ThP
Spectroscopic Ellipsometry Poster Session
4:30 – 7:00 pm

EL-ThP-1 ATR-Ellipsometry Using a Custom Liquid Cell, *Madison Coleman; Mar Diehl, Madison Meaney, Tyler Adams,* Weber State University; ***Jeremy VanDerslice***, J.A. Woollam Co., Inc.; *Alyssa Mock,* Weber State University

EL-ThP-2 Engineering the Optimal Filter: Quantitative Assessment of Linear and Nonlinear Noise-Reducing Filters in Spectroscopy, ***David Aspnes***, North Carolina State University; *Long Le,* Vietnam Academy of Science and Technology, Viet Nam; *Young Kim,* Kyung Hee University, Republic of Korea

EL-ThP-3 Ellipsometry Measurements of Mn-doped Indium Tin Oxide Thin Films Deposited on Glass Substrates by DC Magnetron Sputtering, ***Costel Constantin***, *Masoud Kaveh, David Lawrence,* James Madison University

Surface Science
Room Ballroom BC - Session SS-ThP
Surface Science Poster Session
4:30 – 7:00 pm

SS-ThP-1 Exploring the Oxidation State Void between Single-Atom Alloys and Single-Atom Catalysts: Insights from RhCu and PtCu Alloys, ***Vinita Lal (Graduate Student)***[1], *E. Charles H. Sykes,* Tufts University

SS-ThP-2 Development and Application of an Optimized Photo-Assisted Metal-Assisted Chemical Etching for Overcoming Fabrication Challenges in GaN Schottky Diodes, ***Krystal Woodruff (Undergraduate)***, Kyma Technologies

SS-ThP-3 Product Promoted Acetylene Cyclotrimerization to Benzene and Propyne-Acetylene Coupling to Toluene on Ag(111), ***Nipun Kahagalla Dewage (Graduate Student)***, Tufts University; *Santu Biswas,* Tulane University; *Dennis Meier, Volkan Çinar,* Tufts University; *Matthew M. Montemore,* Tulane University; *Charles Sykes,* Tufts University

SS-ThP-4 Ni Nanocluster formation and Intercalation in Graphene/Ir(111) Heterostructures, ***Shilpa Choyal (Graduate Student)***, University of Illinois at Chicago; *Michael Trenary, Nan Jiang,* University of Illinois - Chicago

SS-ThP-5 Understanding Azide Modifications on Metal Oxides: A Window Into a New Class of Small Molecule Inhibitors, ***John Mason (Graduate Student)***, *Andrew Teplyakov,* University of Delaware

SS-ThP-6 Surface Properties of Zirconium diboride (0 0 0 1) and Homoepitaxial Growth of Zirconium diboride as determined by Scanning Tunneling Microscopy, *Michael Trenary,* ***Ayoyele Ologun (Graduate Student)***[2], University of Illinois - Chicago

SS-ThP-7 Comparing Computational Methods for Predicting STM Images, ***Kaitlyn Handy (Graduate Student)***, *Alex Kandel,* University of Notre Dame

SS-ThP-8 Investigation of sub-Nanoscale Light-Matter Interactions in Carbon Nanomaterials Using Tip-Enhanced Raman Spectroscopy, ***Yuto Fujita (Graduate Student)***[3], Keio University, Japan; *Norihiko Hayazawa,* RIKEN, Japan; *Maria Vanessa Balois-Oguchi,* Institute of Science Tokyo, Japan; *Satoshi Yasuda,* Japan Atomic Energy Agency, Japan; *Takuo Tanaka,* RIKEN, Japan; *Tomoko K. Shimizu,* Keio University, Japan

SS-ThP-9 Localized Physical and Chemical Manipulation of Surfaces via Thermal Scanning Probe Lithography (t-SPL), ***Nicholas Hendricks***, *Emine Çağin,* Heidelberg Instruments Nano AG, Switzerland

SS-ThP-10 Probing the Oxygen-Driven Metal-Support Interactions in Pt/TiO_2 with Near-Ambient Pressure Spectroscopy and Microscopy, ***Gaurav Anand***[4], *Florian Kraushofer, Matthias Krinninger, Marina de la Higuera-Domingo, Lorenz Falling, Barbara A.J. Lechner,* Technical University Munich, Germany

SS-ThP-12 Methanol Dehydrogenation on Pt / Cu (111) Single Atom Alloy Surface, *Michael Trenary,* ***Vishwa Don Lokugan Hewage (Graduate Student)***, University of Illinois - Chicago

SS-ThP-13 Automated Workflows in Photoelectron Spectroscopy: Enhancing Reproducibility and Efficiency, ***Jonathan Counsell***, *Liam Soomary,* Kratos Analytical Limited, UK; *Chris Moffitt,* Kratos Analytical Inc.

SS-ThP-15 Kevion: An Ion Irradiation Facility for Transformative Research in Space Science at the University of Virginia, ***Adam Woodson***, *Catherine Dukes, Aubrey Carley, Robert Johnson,* University of Virginia; *Jeroen Terwisscha van Scheltinga,* Leiden University, Netherlands; *John Ihlefeld, Petra Reinke, Robin Garrod, Ilsedore Cleeves,* University of Virginia

SS-ThP-16 The Importance and Reporting of NAP-XPS Instrument Parameters, ***Braxton Kulbacki (Undergraduate)***[5], *Joshua Pinder, Jacob Crossman, Matthew Linford,* BYU

SS-ThP-17 Landing Energy Dependent Surface Conformation of Electrosprayed Foldamer Molecules, ***Dennis Meier***[6], Tufts University, Germany; *Shengming Zhang, Benedikt Schoof,* Technical University Munich, Germany; *Patrick Lawes,* Karlsruhe Institute of Technology (KIT), Germany; *Pengfei Zhao, Andreas Walz, Annette Huettig, Hartmut Schlichting, Joachim Reichert,* Technical University Munich, Germany; *Anthoula C. Papageorgiou,* Technical University Munich, Greece; *Ivan Huc,* Ludwig-Maximilians-University of Munich, Germany; *Johannes V. Barth,* Technical University Munich, Germany

SS-ThP-18 Understanding Pt-Based Catalysts for Dehydrogenation of Methylcyclohexane for Use in Liquid Organic Hydrogen Carriers, ***Mengxiong Qiao (Graduate Student)***, *Bhawana Rayamajhi, Andreas Heyden, Donna A. Chen,* University of South Carolina

SS-ThP-19 Structural Study of Rhodium-Based Metal Surfaces, ***Elizabeth Serna-Sanchez (Graduate Student)***, *Alexis Gonzalez, Maxwell Gillum, Stephanie Danahey, Dan Killelea,* Loyola University Chicago

SS-ThP-20 Self-assembly and On-surface Reactivity of β-diketonato Molecules on Au(111), ***Chamath Siribaddana (Graduate Student)***, *Nan Jiang,* University of Illinois Chicago

SS-ThP-21 Transformation of TiN to TiNO films via In-situ Temperature-dependent Oxygen Diffusion Process and their Electrochemical Behavior, ***Sheilah Cherono (Graduate Student)***, *Dhananjay Kumar,* North Carolina A&T State University

SS-ThP-22 XPS Study of Initial Oxygen Adsorption on ZrB2 (0001) at Room Temperature, ***Cosmic Gober (Graduate Student)***, University of Illinois - Chicago

SS-ThP-23 Enhanced Electrocatalytic and Supercapacitance Performances of Transition Metal Oxynitride Thin Films, ***Brianna Barbee (Graduate Student)***, North Carolina A&T State University

[1] **SSD Morton S. Traum Award Finalist**
[2] **JVST Highlighted Poster**
[3] **SSD Morton S. Traum Award Finalist**
[4] **JVST Highlighted Poster**
[5] **JVST Highlighted Poster**
[6] **JVST Highlighted Poster**

SS-ThP-24 The Initial Oxidation Reactions of Compositionally Complex Alloys, (Cr-Mn-Fe-Co-Ni), ***Farzad Bastani (Graduate Student)***, University of Virginia, USA; *Keithen Orson, John R. Scully,* University of Virginia; *Petra Reinke,* University of Virginia, USA

SS-ThP-25 Atomic-Scale Investigation of Electron-Induced Processes at Single-Atom Alloy Active Sites, ***Nima Rajabi (Graduate Student)***[1], *Charles Sykes,* Tufts University; *Phillips Hutchison, Emily Carter,* Princeton University

SS-ThP-28 Mechanism of the Water-Gas Shift Reaction on Magnetite Catalysts Studied by Near-Ambient Pressure X-ray Photoelectron Spectroscopy, ***Akash Aoki (Graduate Student)***, *Haruka Matsuda, Seikai Kurosawa, Yuki Tsujikawa, Hiroshi Kondoh, Tomoko K. Shimizu,* Keio University, Japan

SS-ThP-29 Selective Hydrogenation of Styrene to Ethylbenzene Over a Pd/Cu(111) Single-Atom-Alloy Surface , ***Mohammad Rahat Hossain (Graduate Student)***, *Michael Trenary,* University of Illinois - Chicago

SS-ThP-31 Energetics of Methanol Adsorption on H- and CO-Precovered Pt (111) Surface, ***Arjan Saha (Graduate Student)***, Washington State University; *Valeria Chesnyak,* Oregon State University; *Marcus Sharp,* Pacific Northwest National Laboratory; *Nida Janulaitis,* University of Washington; *Zbynek Novotny,* Pacific Northwest National Laboratory; *Charles T. Campbell,* University of Washington; *Líney Árnadóttir,* Oregon State University; *Zdenek Dohnálek,* Pacific Northwest National Laboratory

SS-ThP-32 Correlating Stress Development and Nanopattern Formation of Si Under Low-Energy Ion Bombardment, ***Marlene Ludwig***, *Ellie Stonecipher, Benli Jiang, Karl Ludwig,* Boston University

SS-ThP-33 XPS Analysis of PTFE Decomposition Induced by 10–500 eV Electron Beam Irradiation, ***Hao Yu***, *Jackson King, Sylwia Ptasińska*, University of Notre Dame

SS-ThP-34 Quartz Crystal Microbalance Measurement of Premelting at the Ice-Substrate Interface, ***Blake R Hance (Graduate Student)***, *Steven Sibener,* University of Chicago

SS-ThP-35 Visualizing Inhomogeneous Molecular Adsorption Structures on a Solid Surface by Three-Dimensional Atomic Force Microscopy, ***Keisuke Miyazawa***, *Takeshi Fukuma*, Kanazawa University, Japan

SS-ThP-36 Reorientation in Vertically Aligned Polycrystalline Mos2 Films Due to Shear, ***Shima Karimi (Graduate Student)***, North Carolina A&T State University

SS-ThP-37 Transition Metal Carbides as Pluripotent Catalysts and Support: Materials Synthesis and Reaction Studies, *Keithen Orson, Fanyue Kong, Antonio Valavanis, Prasanna Balachandran, Kory Burns, Ji Ma, Chris Paolucci, Leonid Zhigilei, Sen Zhang*, ***Petra Reinke***, University of Virginia

SS-ThP-39 On-Surface Synthesis of Porous Nanographene with Spin-½ and Spin-3/2 States, ***Mamun Sarker***, University of Nebraska - Lincoln; *Haiyue Huang,* University of California, Los Angeles; *Percy Zahl,* Brookhaven National Laboratory; *Prineha Narang,* University of California, Los Angeles; *Alexander Sinitskii,* University of Nebraska - Lincoln

Thin Films
Room Ballroom BC - Session TF-ThP
Thin Film Poster Session
4:30 – 7:00 pm

TF-ThP-1 Thickness and Elemental Quantification of (Ultra)Thin Films Revisited, ***Markus Sauer***, *Jakob Rath, Annette Foelske,* TU Wien / AIC, Austria; *Dieter Ingerle,* TU Wien / XRC, Austria

TF-ThP-3 Electrical and Mechanical Stability of Flexible Low-Dielectric Constant Carbon-Doped Oxide (SiCOH) Thin Films Under Repeated Mechanical Stress, ***Rajib Chowdhury (Graduate Student)***[2], *SeonHee Jang,* University of Louisiana at Lafayette

TF-ThP-4 The Impact of Copolymer Molecular Sequence on Electronic Transport, ***Mahya Mehregan (Graduate Student)***, *Jack Schultz,* University of Missouri-Columbia; *Matthew Maschman, Matthias Young,* University of Missouri, Columbia

TF-ThP-5 Synthesis of Bismuth-based EUV Photoresists using Molecular Layer Deposition, ***Jane Keth (Graduate Student)***[3], *Duncan Reece, David Bergsman,* University of Washington

TF-ThP-6 Hollow-Cathode Plasma-Assisted ALD of CuO Thin Films: Evaluating Self-Limiting Growth Conditions and Material Properties, *Fatih Bayansal, Steven Allaby, Habeeb Mousa, Helena Silva*, ***Necmi Biyikli***, University of Connecticut

TF-ThP-7 Low-Temperature Atomic Layer Deposition of ZnO Thin Films on Cotton for Flexible Electronics, *Habeeb Mousa,* ***Steven Allaby (Graduate Student)***, *Fatih Bayansal,* University of Connecticut; *Md Sazid Bin Sadeque, Tamer Uyar,* Cornell University; *Helena Silva, Necmi Biyikli,* University of Connecticut

TF-ThP-8 The Impact of Bismuth Surfactants on MBE-Grown Insb Thin Films for Applications in Mid-Infrared Devices, ***T. Pan Menasuta (Graduate Student)***, *John H. McElearney, Thomas E. Vandervelde,* Tufts University

TF-ThP-11 Mesoporous Metal Fluoride Films with Ultra-low Tunable Refractive Index for Broadband Antireflection, ***Choon-Gi Choi***, Thin Film Materials Research Center, Korea Research Institute of Chemical Technology (KRICT), Republic of Korea; *Dong In Kim, Soonmin Yim, Saewon Kang, Sun Sook Lee,* Korea Research Institute of Chemical Technology (KRICT), Republic of Korea; *Ki-Seok An,* Thin Film Materials Research Center, Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

TF-ThP-12 A New Approach to Control Metal Deposition on Dielectrics Selectively Using an Aldehyde Inhibitor, ***Chi Thang Nguyen***, *Kailey E. Jones, Jacob Bohreer, Bratin Sengupta, Jeffrey W. Elam,* Argonne National Laboratory, USA

TF-ThP-13 Al_2O_3 ALD Mechanism of Li_6PS_5Cl: Toward Interface Engineering in Sulfide-Based Solid-State Electrolytes, ***Kyobin Park***, *Donghyeon Kang, Vepa Rozyyev, Anil Mane, Francisco Lagunas, Hacksung Kim, Fulya Dogan, Zachary Hood, Peter Zapol, Justin Connell, Jeffrey Elam,* Argonne National Laboratory

TF-ThP-14 Controlling the Structural and Electrocatalytic Properties of Pulsed Laser Deposited Ruthenium Oxide thin films for Oxygen Evolution Reactions, ***Jonathan McNair (Undergraduate)***, STEM Early College at North Carolina A&T State University; *Russell Boone,* Grimsley High School; *Ikenna Chris-Okoro, Sheilah Cherono, Mengxin Liu, Ghanashyam Gyawali, Veluchamy Palaniappagounder, Shyam Aravamudhan, Dhananjay Kumar,* North Carolina A&T State University

TF-ThP-15 Pulsed Laser Deposition and Characterization of Titanium Oxynitride Thin films for Renewable Energy Applications, ***Russell Boone (Undergraduate)***, Grimsley High School; *Jonathan McNair, Sheilah Cherono, Ikenna Chris-Okoro, Mengxin Liu, Ghanashyam Gyawali, Veluchamy Palaniappagounder, Shyam Aravamudhan, Dhananjay Kumar,* North Carolina A&T State University

TF-ThP-16 Understanding the Electrocatalytic Reaction Kinetics of Ruthenium Dioxide Thin Films using Tafel Equations, ***Jonathan Roop (Undergraduate)***, *Ghanashyam Gyawali, Mengxin Liu, Sheilah Cherona, Ikenna Chris-Okoro, Wisdom Akande, Brianna Barbee, Veluchamy Palaniappagounder, Shyam Arvamudhan, Dhananjay Kumar,* North Carolina A&T State University

TF-ThP-17 Crystallinity's Contribution Toward Electrocatalysis of Ruthenium Dioxide Thin Films, ***Salil Pai***, *Ghanashyam Gyawali, Mengxin Liu, Sheilah Cherona, Ikenna Chris-Okoro, Wisdom Akande, Brianna Barbee, Veluchamy Palaniappagounder, Shyam Arvamudhan, Dhananjay Kumar,* North Carolina A&T State University

TF-ThP-18 Power-Modulated Thermally Assisted Oxygen Plasma for Enhanced Reliability in Tio_2/Tio_{2-x} Memristors, ***Beom Gu Lee (Graduate Student)***, Chungdaro 1, Republic of Korea; *Jae-Yun Lee,* 409, Chungdaero 1 E8-1, Republic of Korea; *Sung-Jin Kim,* Chungdaro 1, Republic of Korea

TF-ThP-19 Pholuminescence on Room-temperature Germanium-Tin (GeSn), ***Lia Guo (Undergraduate)***, *Vijay Gregory, Jay Mathews,* University of North Carolina at Charlotte

Undergraduate Poster Session
Room Ballroom BC - Session UN-ThP
Undergraduate Poster Session
4:30 – 7:00 pm

UN-ThP-1 Nitrogen Plasma Treated-Polylactic Acid: Examining pH Variations During Degradation, ***Imaandeep Bual (Undergraduate)***, *Morgan Hawker,* California State University, Fresno

UN-ThP-3 Investigation of Spinel and Sapphire Plasma Etching for Development of Anti-Reflection Nanostructures, ***Sean Campbell (Undergraduate)***, *Thomas Hutchens, Stephanie Alvarez, Jacob Hay, Tyler Benge, Ishwar Aggarwal,* The University of North Carolina at Charlotte

UN-ThP-5 Freshwater Biofouling Analysis of Nano-Textured and Anti-Reflection Coated Windows, ***Stephanie Alvarez (Undergraduate)***, *Thomas Hutchens, Sean Campbell, Jacob Hay, Tyler Benge, Ishwar Aggarwal,* University of North Carolina at Charlotte

[1] **JVST Highlighted Poster**
[2] **TFD James Harper Award Finalist**
[3] **JVST Highlighted Poster**

UN-ThP-6 Sol-Gel Hyper-Hydrophilic Anti-Fog Coatings Study & Model Of Surface Condensation Vs. Current Anti-Fog Strategies To Maximize Time-To-Fog & Optical Properties On Medical Lenses, *Nicole Herbots,* Sio2 Innovates LLC / Infinitum BioMed LLC / UV One Hygienics Inc. / Arizona State University Department of Physics; ***Arya Bhakta (Undergraduate)***[1], SiO2 Innovates LLC / Case Western Reserve University; *Shreyash Prakash,* Sio2 Innovates LLC / Infinitum BioMed LLC; *Viraj Amin,* Sio2 Innovates LLC / Infinitum BioMed LLC / University of Missouri-Kansas City School of Medicine; *Ashwin Suresh,* Sio2 Innovates LLC / Infinitum BioMed LLC / University of Arizona Department of Physiology; *Srivatsan Swaminathan,* Sio2 Innovates LLC / Infinitum BioMed LLC / Arizona State University / Icahn School of Medicine at Mount Sinai; *Visheshwar Swaminathan,* Sio2 Innovates LLC / Infinitum BioMed LLC / UV One Hygienics Inc.; *Dora D. Suppes, Mark Russell-Hill,* Infinitum BioMed LLC / UV One Hygienics Inc.; *Robert J. Culbertson,* Arizona State University Department of Physics; *Eric J. Culbertson,* Providence Santa Rosa Memorial Hospital / SiO2 Innovates LLC

UN-ThP-8 An Investigation into the Optoelectronic Properties of Layered and Vertically Aligned MoS_2-$MoSe_2$ Heterostructures on Different Substrates, ***Elycia Wright (Undergraduate)***, Clark Atlanta University; *Kedar Johnson,* Clemson University; *Amari Gayle, Robin Rouseau, M.K. Indika Senevirathna, Michael D. Williams,* Clark Atlanta University

UN-ThP-9 Correlation Analysis of In Situ Atomic Layer Deposition Mass Spectrometry Data for Surface Reaction Analysis, ***Ayelen Mora (Undergraduate)***, *Eric Bissel, Parag Banerjee,* University of Central Florida

UN-ThP-10 Naturally Derived Polymers for Biomedical Applications: Stabilizing Hydrophilicity after Nitrogen-Plasma-Treatment, ***Mina Abdelmessih (Undergraduate)***[2], *Morgan Hawker,* California State University, Fresno

UN-ThP-12 Bacterial Infection Detection in Drops Flattened into Thin Films by Super-hydrophilic Collection Surfaces using Macroscopic DNA/RNA Epi-Fluorescence: A hand-held sensor for Bacterial Infection Diagnosis: BacteroBug™, ***Arya Saravanan (Undergraduate)***, SiO2 Innovates/Arizona State University, Life Sciences & BioChemistry; *Sriram Rajesh,* SiO2 Innovates LLC; *Nila Kathiravan,* SiO2 Innovates LLC/InnovaBug LLC; *Sudharshini Ram, Nithish Prakash,* SiO2 Innovates LLC/InnovaBug LLC/ViroBug LLC; *Viraj Amin,* SiO2 Innovates LLC/InnovaBug LLC/University of Missouri - Kansas City (School of Medicine); *David Guo,* SiO2 Innovates LLC/Innovabug LLC/Drexel University/University of Arizona School of Medicine; *Eric J. Culbertson,* SiO2 Innovates LLC/InnovaBug LLC/Microbe Lab-On-Chip LLC; *Robert J. Culbertson,* Arizona State University Department of Physics; *Nicole Herbots,* SiO2 Innovates LLC/InnovaBug LLC/Microbe Lab-On-Chip LLC/Arizona State University

UN-ThP-14 Statistical Optimization of Polynomial Fits for Carbon Bonding Analysis in XPS, ***Garrett Lewis (Undergraduate)***, *Matthew Linford, Alvaro Lizarbe,* Brigham Young University; *David Aspnes,* North Carolina State University

UN-ThP-15 Formation of Etch Masking Layer on Fiber Optic Tip via Laser Annealing for ARSS, ***Riley van Ravesteyn (Undergraduate)***, *Jacob Hay, Stephanie Alvarez, Sean Campbell, Tyler Benge, Ishwar Aggarwal, Thomas Hutchens,* UNC Charlotte

UN-ThP-16 Investigating the Surface Evolution of the Self-Assembly of Quinone Derivatives on Au(111) Using Ambient STM and CV, ***Cara Plaisance (Undergraduate)***, *Nazila Hamidi, Erin Iski,* University of Tulsa

UN-ThP-17 Recommendations & Justifications for Peak Fitting PDMS & Similar Polymers, ***Heidi Meyers (Undergraduate)***, *Joshua Pinder, Matthew Linford, George Major,* Brigham Young University

UN-ThP-18 Structural Characterization of Gadolinium-Doped Indium Tin Oxide Thin Films Grown on Various Substrates for Dilute Magnetic Semiconductor Applications, ***Landon Brown (Undergraduate)***, *Masoud Kaveh, David Lawrence, Costel Constantin,* James Madison University

UN-ThP-19 Benchmarking Active Learning Protocols for Collaborative Cross-Facility Autonomous Workflows, ***Stephen Xiao (Undergraduate)***, Oak Ridge National Laboratory; *Ryan Lewis, Noah Paulson,* Argonne National Laboratory; *Yongtao Liu, Sumner Harris,* Oak Ridge National Laboratory

UN-ThP-20 Atom-based Quantum Sensors: Electromagnetic Induced Transparency in Rubidium, *Brian Holloway,* United States Military Academy; ***Michael Speer (Undergraduate)***, West Point; *Tyler Catapano,* United States Military Academy

UN-ThP-21 Electrodialytic Separation of Cobalt and Nickel in the Presence of EDTA, ***Jonah Buck (Undergraduate)***, *Samuel Perkins,* Oregon State University

UN-ThP-22 Denoising X-ray Photoelectron Spectroscopy Data by Fourier Analysis, ***Kristopher Wright (Undergraduate)***, *Matthew Linford, Alvaro Lizarbe, Garrett Lewis,* Brigham Young University; *David Aspnes,* North Carolina State University; *David Morgan,* Cardiff University, UK; *Mark Isaacs,* University College London, UK; *Jeff Terry,* Illinois Institute of Technology

Vacuum Technology
Room Ballroom BC - Session VT-ThP
Vacuum Technology Poster Session
4:30 – 7:00 pm

VT-ThP-1 Deposition and Sublimation of Argon Sphere Immersed in a Non-Condensable Gas Over an Wide Range of the Knudsen Number, ***Felix Sharipov***, Universidade Federal do Paraná, Physics Department, Brazil; *Denize Kalempa,* Universidade de Sao Paulo, Brazil; *Irina Graur,* Aix-Marseille University, France

VT-ThP-2 Experimental Characterization of Water Outgassing Energetics on Bare and Magnetite-Coated Low-Carbon Steel Surfaces, ***Aiman Al-Allaq (Graduate Student)***, ODU - Jefferson Lab; *Md Abdullah Al Mamun, Matthew Poelker,* Jefferson Lab; *Abdelmageed Elmustafa,* ODU

[1] **JVST Highlighted Poster**

[2] **JVST Highlighted Poster**

Friday Morning, September 26, 2025

	Room 201 ABCD W	
8:15am	**PS1-FrM-1** First-Principles Study on Film Stress Mechanisms of Amorphous Carbon: The Role of Bond Hybridization, ***Yusuke Ando (Graduate Student)***, Nagoya University, Japan; *Hu Li, Jianping Zhao,* Tokyo Electron America, Inc.; *Masaaki Matsukuma,* Tokyo Electron Technology Solutions Ltd., Japan; *Kenji Ishikawa,* Nagoya University, Japan; *Peter Ventzek,* Tokyo Electron America, Inc.	**Plasma Science and Technology** **Session PS1-FrM** **Plasma Processes for Coatings and Thin Films** **Moderators:** **Erwin Kessels**, Eindhoven University of Technology, the Netherlands, **Scott Walton**, Naval Research Laboratory
8:30am		
8:45am	**INVITED: PS1-FrM-3** AVS John Thornton Award Talk: Creating a Dream Team: Thin Films, Plasma Chemistry, Holistic Approaches, and Non-Traditional Pathways, ***Ellen R. Fisher***, University of New Mexico	
9:00am		
9:15am	**PS2-FrM-5** Measurement of Cold Spit Tin Particle Trajectories in a Hydrogen Plasma, ***Jaime Robertson (Graduate Student)***, University of Illinois Urbana-Champaign; *Raoul de Rooij, Andrei Yakunin, Victoria Voronina,* ASML, Netherlands; *David Ruzic,* University of Illinois at Urbana-Champaign	**Plasma Science and Technology** **Session PS2-FrM** **Plasma in EUV Scanner Technology** **Moderators:** **Erwin Kessels**, Eindhoven University of Technology, the Netherlands, **Scott Walton**, Naval Research Laboratory
9:30am	**INVITED: PS2-FrM-6** Benefits and Challenges of Plasma in EUV Lithography Scanners, ***Seth Brussaard***, ASML	
9:45am		
10:00am	**PS2-FrM-8** Stannane Decomposition and Sticking Coefficient in Extreme Ultraviolet Lithography Environments, ***Emily Greene (Graduate Student)***, *Nathan Barlett, Jameson Crouse, Eric Mushrush, Alex Shapiro,* University of Illinois; *Niels Braaksma,* ASML; *David Ruzic,* University of Illinois	
10:15am	**BREAK**	
10:30am		**Plasma Science and Technology** **Session PS3+TF-FrM** **Plasmas and PVD** **Moderators:** **Erwin Kessels**, Eindhoven University of Technology, the Netherlands, **Scott Walton**, Naval Research Laboratory
10:45am	**PS3+TF-FrM-11** Self-Regulating Electron Temperature in High-Power Impulse Magnetron Sputtering Discharges and Its Effect on the Metal Ion Escape, ***Kateryna Barynova (Graduate Student)***, University of Iceland; *Nils Brenning,* KTH Royal Institute of Technology, Sweden; *Swetha Suresh Babu,* University of Iceland; *Joel Fischer, Daniel Lundin,* Linköping University, Sweden; *Michael A. Raadu,* KTH Royal Institute of Technology, Sweden; *Jon Tomas Gudmundsson,* University of Iceland; *Martin Rudolph,* Leibniz Institute of Surface Engineering (IOM), Germany	
11:00am	**PS3+TF-FrM-12** Comparison of Particle Size and Morphology of Graphene-Like Carbon Grown with and Without Substrate in Atmospheric Pressure Microwave Plasma, ***Parker Hays (Graduate Student)***, *Dhruval Patel, Dren Qerimi,* University of Illinois at Urbana-Champaign; *Michael Stowell,* Lyten; *David Ruzic,* University of Illinois at Urbana-Champaign	
11:15am	**PS3+TF-FrM-13** Mass Spectrometric Study of Ar-Diluted Ammonia Borane Plasma for H-Bn 2d Film Formation, ***Takeshi Kitajima***, *Reiji Kawasaki, Toshiki Nakano,* National Defense Academy, Japan	
11:30am	**PS3+TF-FrM-14** Automated Deposition Chamber for Functional Dielectrics: Development and Implementation, ***Stanislav Udovenko***, *Ian Mercer, Susan Trolier-McKinstry, Jon-Paul Maria, Darren Pagan,* The Pennsylvania State University	

Friday Morning, September 26, 2025

	Room 205 ABCD W	
8:15am	**INVITED: MN1-FrM-1** MEMS-Enabled Photonic Integrated Circuits, ***Marcel Pruessner,*** *Todd Stievater, Nathan Tyndall, Steven Lipkowitz, Jacob Bouchard, Kyle Walsh,* US Naval Research Laboratory	**MEMS and NEMS** **Session MN1-FrM** **Integration and Multiphysics** **Moderators:** **Philip Feng**, University of Florida, **Jaesung Lee**, University of Central Florida
8:30am		
8:45am	**MN1-FrM-3** Crack-Free Growth and Improved Saturation Magnetization of NiCuZn Ferrite Films by Combining Sputtering and Sol-Gel Methods, ***Sushma Kotru,*** *Roni Paul,* The University of Alabama	
9:00am	**MN1-FrM-4** Integration of Metal Microsystems for Gas Sensing, ***David Hayes (Undergraduate),*** *Henry Davis, Jeremy Cook, Jordan Grow, James Harkness, Isa Kohls, Richard Vanfleet, Brian Jensen, Nathan Crane, Robert Davis,* Brigham Young University	
9:15am	**MN1-FrM-5** Nanomechanical Resonances of Graphene Membranes Integrated on $LiNbO_3$-on-Insulator Chips, ***Nawara Tanzee Minim (Graduate Student),*** *S M Enamul Hoque Yousuf, Yunong Wang, Philip Feng,* University of Florida	
9:30am		
9:45am		
10:00am		
10:15am	**BREAK**	
10:30am	**INVITED: MN2-FrM-10** Optomechanical Resonant Pixels with Metasurface and Phonon Engineering for Uncooled Infrared (IR) Detection, ***Philip Feng,*** University of Florida	**MEMS and NEMS** **Session MN2-FrM** **2D and NEMS** **Moderators:** **Marcel Pruessner**, Naval Research Laboratory, **Yanan Wang**, University of Nebraska-Lincoln
10:45am		
11:00am	**MN2-FrM-12** Controlled Thinning of Semiconductor Membranes Using Low-Fluence Laser Pulses at MHz Frequencies, ***Shahadat Hossain (Graduate Student),*** *Renato Camata,* University of Alabama at Birmingham	
11:15am	**MN2-FrM-13** Electrical Tunability of AlN Nanoelectromechanical Resonators, ***Sariha Azad (Graduate Student),*** *Tahmid Kaisar, Timothy Caplice,* University of Florida*; Philip X.-L. Feng,* University of Florida, Gainesville	
11:30am	**MN2-FrM-14** Probing Velocity Limits of Resonant SiC Electromechanical Cantilevers, ***Aswathi Madhu (Graduate Student),*** *Philip Feng,* University of Florida, Gainesville	

Friday Morning, September 26, 2025

	Atomic Scale Processing Mini-Symposium **Room 206 A W - Session AP+EM+PS+TF-FrM** **Area Selective Processing and Patterning** **Moderators: Steven M. George**, Univ. of Colorado at Boulder, **Angelique Raley**, TEL Technology Center, America, LLC	**Thin Films** **Room 206 B W - Session TF-FrM** **Fundamentals of Thin Films III** **Moderators: Mark Losego**, Georgia Institute of Technology, **Junjie Zhao**, Zhejiang University, China
8:15am	**AP+EM+PS+TF-FrM-1** Exploring Intermolecular Interactions of an Acetylacetone Variant as Small Molecule Inhibitor for Area-Selective ALD, ***Eric Ha Kit Wong (Graduate Student)***, *Marc J. M. Merkx, Joost F. W. Maas,* Eindhoven University of Technology, The Netherlands*; Ilker Tezsevin,* Eindhoven University of Technology, Netherlands*; Wilhelmus M. M. Kessels,* Eindhoven University of Technology, The Netherlands*; Tania E. Sandoval,* Universidad Tecnica Federico Santa Maria, Chile*; Adriaan J. M. Mackus,* Eindhoven University of Technology, The Netherlands	
8:30am	**AP+EM+PS+TF-FrM-2** the Influence of Intermolecular Interaction on the Packing of Small Molecule Inhibitors: A Simulation Study, ***Joost Maas (Graduate Student)***, *Marc Merkx,* Eindhoven University of Technology, Netherlands*; Tania Sandoval,* Universidad Tecnica Federico Santa Maria, Chile*; Adrie Mackus,* Eindhoven University of Technology, Netherlands	**TF-FrM-2** Themally-Managed QCM in ALD for Rapid Saturation Curves, ***David Kane***, Arradiance LLC
8:45am	**AP+EM+PS+TF-FrM-3** Tuning Surface Reactivity by Small Molecule Modifiers in Area-Selective ALD: Small Molecule Inhibitors (SMI) vs. Small Molecule Promoters (SMP), ***Andrew Teplyakov***, University of Delaware	**TF-FrM-3** Conductive Transparent Porous Al-Doped ZnO Conformal Coatings Synthesized Using Sequential Infiltration Synthesis Method, ***Vasanta Gurung (Graduate Student)***, *Diana Berman,* University of North Texas
9:00am	**AP+EM+PS+TF-FrM-4** Topographically Selective Atomic Layer Etching of HfO_2 and ZrO_2 Using NbF_5 and $TiCl_4$, ***Boyun Choi (Graduate Student)***, *Getasew Zewdie, Hyeyoung Shin, Nari Jeon,* Chungnam National University, Republic of Korea	**TF-FrM-4** Effect of Aminosilane Precursor and Initial Surface Silanol Density on O2 Plasma-Assisted ALD of SiO2, ***Andrew Kaye (Graduate Student)***, Colorado School of Mines*; Bhushan Zopé,* Intermolecular, Inc.*; Xinjian Lei, Agnes Derecskei, Haripin Chandra,* EMD Electronics, USA*; Sumit Agarwal,* Colorado School of Mines
9:15am	**INVITED: AP+EM+PS+TF-FrM-5** Area Selective ALD for Future Engineering Challenges, ***Stacey Bent***, Stanford University	**TF-FrM-5** Low-Temperature Growth of Epitaxial III-Nitride Films via Hollow Cathode Plasma Atomic Layer Deposition, ***Steven Allaby (Graduate Student)***, *Habeeb Mousa, Fatih Bayansal, Abiodun Aderibigbe, Mustafa Yavuz, Steven Suib, Helena Silva, Necmi Biyikli,* University of Connecticut
9:30am		**TF-FrM-6** Understanding Oxygen Evolution Reaction and Charge Transfer Behavior at the Electrode-Electrolyte Interface Using Pulsed Laser-Deposited Ruthenium Oxide Thin Films, ***Mengxin Liu***, North Carolina A&T State University
9:45am	**AP+EM+PS+TF-FrM-7** Controlling ASD of a Multi-Color System: PEDOT ASD between SiN, Si-H, and SiO2 by Pre-Treatment Adjustment, ***Jeremy Thelven (Graduate Student)***, *Nicholas Carroll, Gregory Parsons,* North Carolina State University	**TF-FrM-7** Growth of Ag Nanomorphologies by High-Temperature Glancing Angle Deposition — from Initial Growth Stage to Whisker/Plate Formation, ***Motofumi Suzuki***, Kyoto University, Japan*; Khushi Aggarwal,* Indian Institute of Technology Delhi, India*; Ayako Miki, Taisei Morita, Kota Saeki, Taichi Banno, Kyoko Namura,* Kyoto University, Japan
10:00am	**AP+EM+PS+TF-FrM-8** Kinetics Model for Selective Thermal Etching of $Si_{1-x}Ge_x$ in F_2/Ar, ***Yi Chen***, *Daniel Cho,* University of California, Los Angeles*; John Hoang, Nicholas Altieri, Ji Zhu, Samantha Tan,* Lam Research Corporation*; Jane Chang,* University of California, Los Angeles	**TF-FrM-8** Controlled Growth of Tellurium Network Structures for Multi-Spectral Photodetector Applications, ***Ahmed Adel A. Abdelazeez (Graduate Student)***, *Wanseok Oh, Yizhou Wang, Tom Schmedake, Yong Zhang, Haitao Zhang,* University of North Carolina at Charlotte
10:15am	**BREAK**	**BREAK**
10:30am	**INVITED: AP+EM+PS+TF-FrM-10** Area-Selective Deposition by Surface Engineering for Applications in Nanoelectronics: Enablement of 2d and 3d Device Scaling and Self-Alignment, ***Silvia Armini***, IMEC Belgium	**TF-FrM-10** A Comparative Study of Effects of Ultraviolet Irradiation and Laser Curing on Hydrogenated Amorphous Carbon Thin Films, ***Md. Mahfujur Rahman (Graduate Student)***, *Rajib Chowdhury, Seonhee Jang,* University of Louisiana
10:45am		**TF-FrM-11** Synthesis, Characterization, and Classification of Polymer-Like Hydrogenated Amorphous Carbon, ***Seonhee Jang***, *Rajib Chowdhury, Thomas Poché,* University of Louisiana at Lafayette
11:00am	**AP+EM+PS+TF-FrM-12** MO-Mo? Oh No! The Problem of Carbon in Metalorganic Molybdenum Deposition, ***Kyle Blakeney***, *David Mandia, Matthew Griffiths, Jeong-Seok Na, Raihan Tarafdar, Jeremie Dalton,* Lam Research Corporation	
11:15am	**AP+EM+PS+TF-FrM-13** The Effects of Process Chemistry on Blocking Chemisorption in ALD: Thin Film Precursor, Co-Reactant and Co-Adsorbate, *Jay Swarup, James Jensen, Jeffrey Gao,* ***James Engstrom***, Cornell University	**TF-FrM-13** Evaluating Repeatability of Structural and Electrical Properties of PLZT Films Prepared Using Three Distinct Sol-Gel Routes, ***Sneha Kothapally (Graduate Student)***, *Sushma Kotru,* The University of Alabama
11:30am		
11:45am		

Friday Morning, September 26, 2025

	Actinides and Rare Earths **Room 207 A W - Session AC+MI-FrM** **Spectroscopy, Spectrometry, 5f Behavior and Forensics** **Moderators:** **Ladislav Havela**, Charles University, Czech Republic, **Alison Pugmire**, LANL	**2D Materials** **Room 208 W - Session 2D+AQS+EM+NS+QS+TF-FrM** **2D Materials: Devices and Applications** **Moderator:** **Kai Xiao**, Oak Ridge National Laboratory
8:15am	**INVITED: AC+MI-FrM-1** Exploring the Surface Chemistry of Plutonium using ToF-SIMS, ***Sarah Hernandez,*** Los Alamos National Laboratory	**INVITED: 2D+AQS+EM+NS+QS+TF-FrM-1** Charge Transport in Printed Films of Two-Dimensional Materials for Printed and Wearable Electronics, ***Felice Torrisi,*** Imperial College London, UK
8:30am		
8:45am	**AC+MI-FrM-3** HERFD vs XAS: The Case for Equivalence, ***J G Tobin,*** U. Wisconsin - Oshkosh	**2D+AQS+EM+NS+QS+TF-FrM-3** Antimony as a Contact Material for Two-Dimensional Semiconductors: Interface Chemistry and Thermal Stability, *Fernando Quintero Borbon, Joy Roy, Robert Wallace,* ***Rafik Addou,*** University of Texas at Dallas
9:00am	**AC+MI-FrM-4** Room Temperature H_2 Dosing on Polished α-Pu Surfaces with XPS, ***Daniel Rodriguez***[1], *Timothy Gorey, William Ponder, Alessandro Mazza, Raymond Atta-Fynn, Sarah Hernandez,* Los Alamos National Laboratory	**2D+AQS+EM+NS+QS+TF-FrM-4** Metal-to-Semiconductor Transition in Niobium Sulfoselenide Alloy and Niobium Sulfide Films by Compositional Control and Post Growth Sulfurization, ***Tinsae Alem (Graduate Student),*** *Abir Hasan, Kory Burns, Nikhil Shukla, Stephen McDonnell,* University of Virginia
9:15am	**AC+MI-FrM-5** Ab Initio Modeling of Hydrogen Interaction with the Surface of α-Pu, ***Raymond Atta-Fynn,*** *Sarah Hernandez,* Los Alamos National Laboratory	**2D+AQS+EM+NS+QS+TF-FrM-5** Evolution of the Electronic Gap of Directly Synthesized Versus Mechanically Transferred WS2 Monolayer to Multilayer Films, ***Xu He (Graduate Student),*** *Antoine Kahn,* Princeton University
9:30am	**AC+MI-FrM-6** A Novel Lexan-Aerogel Detector for Fission Track Analysis for Advancing Nuclear Forensics, ***Itzhak Halevy,*** *Rami Babayew, Yaacov Yehuda-Zada,* Ben Gurion University Be'er Sheva, Israel*; Galit Bar,* Soreq Nuclear Research Center, Israel*; Noam Elgad, Mark Last,* Ben Gurion University Be'er Sheva, Israel*; Jan Lorincik,* Research Centre Řež, Czechia*; Itzhak Orion,* Ben Gurion University Be'er Sheva, Israel*; Shay Dadon,* Nuclear Research Center Negev, Israel*; Aryeh M. Weiss,* Bar Ilan University, Israel*; Galit Katarivas Levy,* Ben Gurion University Be'er Sheva, Israel	**2D+AQS+EM+NS+QS+TF-FrM-6** 2D Phase Diagram of Iron Sulfides on Au(111):From Hexagonal to Square Atomic Arrangement and Beyond, ***Andrea Berti (Graduate Student),*** University of Trieste, Italy*; Marco Bianchi, Paolo Lacovig, Silvano Lizzit,* Elettra-Sincrotrone Trieste, Italy*; Philip Hofmann,* Aarhus University, Denmark*; Alessandro Baraldi,* University of Trieste, Italy
9:45am		**2D+AQS+EM+NS+QS+TF-FrM-7** The Electronic Band Structure and Conduction Band Formation of $HfSe_3$, ***Gauthami Viswan (Graduate Student)***[2], University of Nebraska-Lincoln, USA*; Alexey Lipatov,* South Dakota School of Mines and Technology*; Alexander Sinitskii,* University of Nebraska-Lincoln, USA*; Jose Avila,* Synchrotron SOLEIL and Universite Paris-Saclay, France*; Takashi Komesu,* University of Nebraska-Lincoln, USA*; Maria C. Asensio,* Madrid Institute of Materials Science (ICMM), Spain*; Peter A. Dowben,* University of Nebraska-Lincoln, USA
10:00am		
10:15am	**BREAK**	**BREAK**
10:30am		**INVITED: 2D+AQS+EM+NS+QS+TF-FrM-10** Applications of Two-dimensional Materials in Energy, Water, and Healthcare, ***David Estrada,*** Boise State University
10:45am		
11:00am		**2D+AQS+EM+NS+QS+TF-FrM-12** Electronic Structure Modulation in 2D Metal–Graphene–Metal Electrocatalysts for CO_2 Reduction and Hydrogen Evolution Reactions, ***Arturo Medina (Graduate Student),*** *Ines Saih, Vikas Muralidharan,* Georgia Institute of Technology*; Jinwon Cho,* NREL*; Faisal Alamgir,* Georgia Institute of Technology
11:15am		**2D+AQS+EM+NS+QS+TF-FrM-13** Large Area Nanostructuring of Van Der Waals Materials for Photon Harvesting in the Flat Optics Regime, ***Matteo Barelli***[1], *Francesco Buatier de Mongeot, Simone Di Marco,* University of Genoa, Italy*; Rajesh Chennuboina,* University of Genoa, India*; Giorgio Zambito, Giulio Ferrando,* University of Genoa, Italy*; Matteo Gardella,* CNR-IMM, Italy*; Maria Caterina Giordano,* University of Genoa, Italy
11:30am		**2D+AQS+EM+NS+QS+TF-FrM-14** Exploring the Temperature Coefficient of Frequency (TC*f*) in Graphene Trampoline Resonators, ***Yunong Wang (Graduate Student),*** *Nawara Tanzee Minim, S M Enamul Hoque Yousuf, Philip Feng,* University of Florida
11:45am		

[1] **JVST Highlighted Talk**

[2] **SSD Morton S. Traum Award Finalist**

Friday Morning, September 26, 2025

	Room 209 CDE W	
8:15am	**INVITED: SS-FrM-1** On-Surface Synthesis of Planar/Nonplanar Porous Graphene Nanoribbons and Nanosheets, ***Junfa Zhu,*** University of Science and Technology of China	**Surface Science** **Session SS-FrM** **Surface Science of Reduced Dimensional Materials** **Moderators:** **Moritz Eder**, TU Wien, Austria, **Naihao Chiang**, University of Houston
8:30am		
8:45am	**SS-FrM-3** Deuterium Adsorption on N-Doped Carbon Materials, ***Buddhika Alupothe Gedara,*** *Mi Yeon Byun, Zdenek Dohnalek, Zbynek Novotny, Tom Autrey,* Pacific Northwest National Laboratory	
9:00am	**SS-FrM-4** Ion Beam-induced MoS_2 Surface Modification: An XPS Study of Ar+ and Ar Gas Cluster Ion Beam Treatments, ***Francesco Laudani (Graduate Student),*** *Markus Sauer, Dmitry Polyushkin,* Technische Universität Wien, Austria*; Lorenzo Pettorosso,* Technische Universität Vienna, Austria*; Jakob Rath, Jakob Hemetsberger, Annette Foelske,* Technische Universität Wien, Austria	
9:15am	**SS-FrM-5** Model Studies of the Surface Structure and Stability of Metal Nanoparticles on Oxide Surfaces Under Catalytic Conditions, ***Ravi Ranjan,*** *Francisco Zaera,* University of California - Riverside	
9:30am	**SS-FrM-6** Exploring the Catalytic Potential of Supported MgO Nanostructures for CH_4 Conversion, ***Arephin Islam***[1]*,* Brookhaven National Laboratory*; Jose Rodriguez,* Brookhaven National Laboratory and State University of New York at Stony Brook	
9:45am	**SS-FrM-7** Automated Matter Manipulation to Create Artificial Lattice Structures, ***Ganesh Narasimha***[1]*, Mykola Telychko, Wooin Yang, Arthur Baddorf, An-Ping Li, Rama Vasudevan,* Oak Ridge National Laboratory	
10:00am	**SS-FrM-8** Morton Traum Student Award Announcement	
10:15am	**BREAK**	
10:30am	**INVITED: SS-FrM-10** Atomic-Scale Exploration of Low-Dimensional Materials, ***Nathan Guisinger,*** Argonne National Laboratory, USA	
10:45am		
11:00am	**SS-FrM-12** Using Two-Dimensional Covalent Organic Frameworks to Stabilize Single-Atom Catalysts on Model Surfaces, ***Yufei Bai (Graduate Student),*** Indiana University Bloomington*; David Wisman,* NAVSEA Crane*; Steven Tait,* Indiana University Bloomington	
11:15am	**SS-FrM-13** Probing the Promotion or Inhibition of TiO_2 Atomic Layer Deposition on Si(111) Surfaces Modified by Basic Amines, ***Tyler Parke (Graduate Student),*** *Andrew Teplyakov,* University of Delaware	
11:30am	**SS-FrM-14** Oxides Formed on Multi-Phase Complex Concentrated Alloys: Nanoscale Spectroscopic Imaging with XPEEM and Tof-SIMS, ***Keithen Orson (Graduate Student),*** *Samuel Inman,* University of Virginia*; Jerzy Sadowski,* Brookhaven National Laboratory*; Derk Rading, Julia Zakel,* ION-TOF USA, Inc.*; John Scully, Petra Reinke,* University of Virginia	
11:45am		

[1] **JVST Highlighted Talk**

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